For manuscript:

"**Need for assessing the inhalation of micro(nano)plastic debris shed from masks, respirators, and home-made face coverings during the COVID-19 pandemic**"

1. Methods and QA/QC, on sample preparation and image acquisition

Samples were prepared and handled in a lamellar flow clean bench. Samples were cut into large-size coupons (approx. 2 × 2 cm) using pre-cleaned and degreased stainless-steel scissors. Each sample was stored in a clean glass petri dish pre-washed and rinsed with ultrapure water from a laboratory water purification system (Milli-Q Direct-Q UV3). The total exposure time for each sample in open air was estimated to be 60–120 s, during Pt coating and sample mounting in a SEM clean room.

Scanned electron microscopy images were acquired on a JOEL field emission scanning electron microscope. Samples were coated with ~7 nm Pt on a JOEL fine coater prior to analysis. Before acquiring images, edges on each sample were confirmed under low magnification to locate field of views in inner regions to avoid edges and areas affected by cuts.

Optical microscope images were acquired on a Nikon Eclipse E200 biological microscope with a ToupTek E3ISPM camera installed via a Nikon C-Mount. Images were taken on new, intact products without cutting, which were taken out from packages immediately before the analysis. Sample stage was fully enclosed with aluminum foils during microscopic examination and image acquisition.

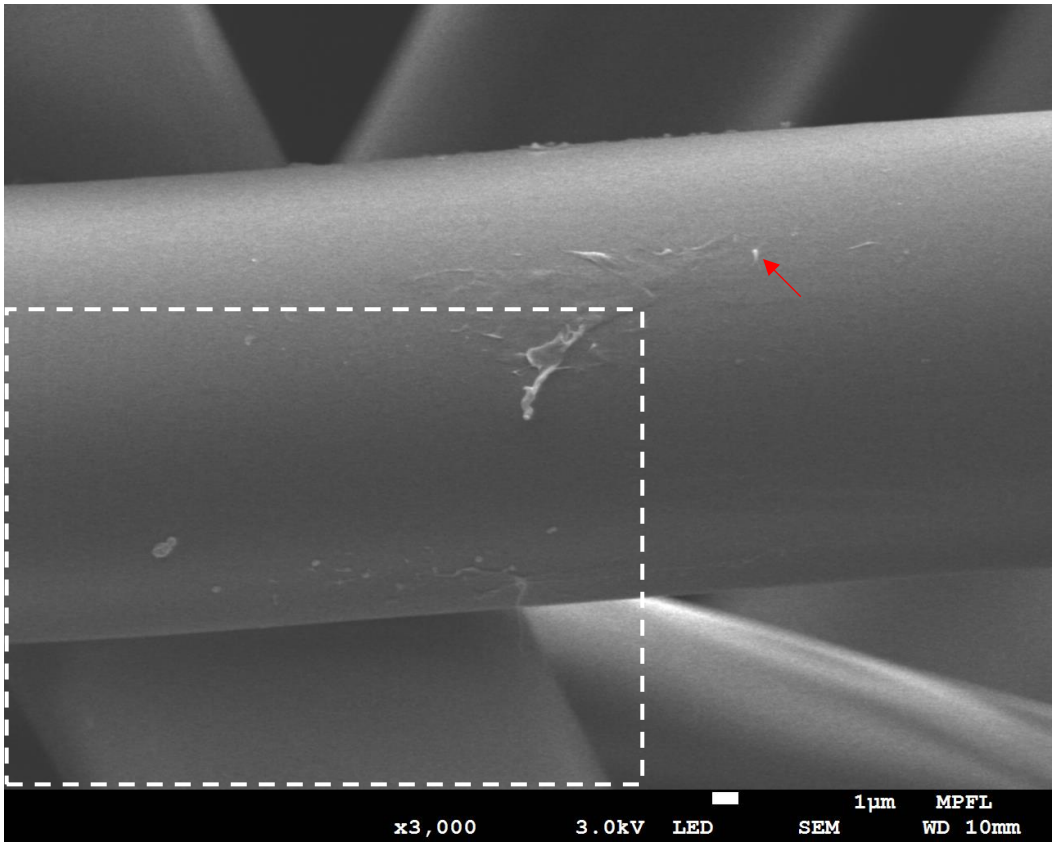
Pervasive sample contamination was ruled out by the following observations. First, most of the particles and fibrils we identified were carried on structural fibers. Some appeared to be loosely attached while others still connected to their main fiber. The two types of debris often appeared in the same cluster with similar morphologies and textures, indicating that they originated from the same structural fiber rather than external sources. Secondly, the abundance, patterns, and morphologies of loosely attached debris showed clear sample dependence, despite the fact that samples were exposed to the same environments during the preparation and handling. Particles and fibrils, with sizes in the micro- and nano-sized range, were extremely abundant on the inner facing of two sample products (c & d), which were found on almost *every* structural fiber we examined under the electron microscope.

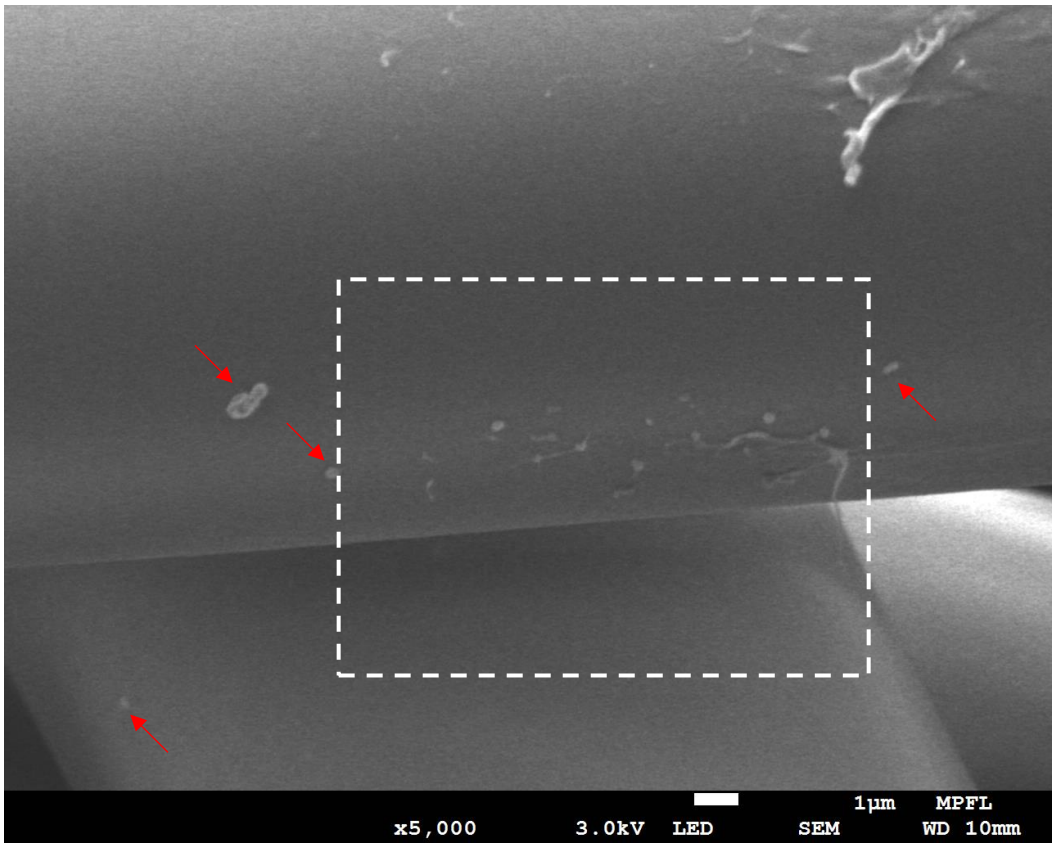
2. SEM images on samples, showing parent and close-ups and image acquisition settings

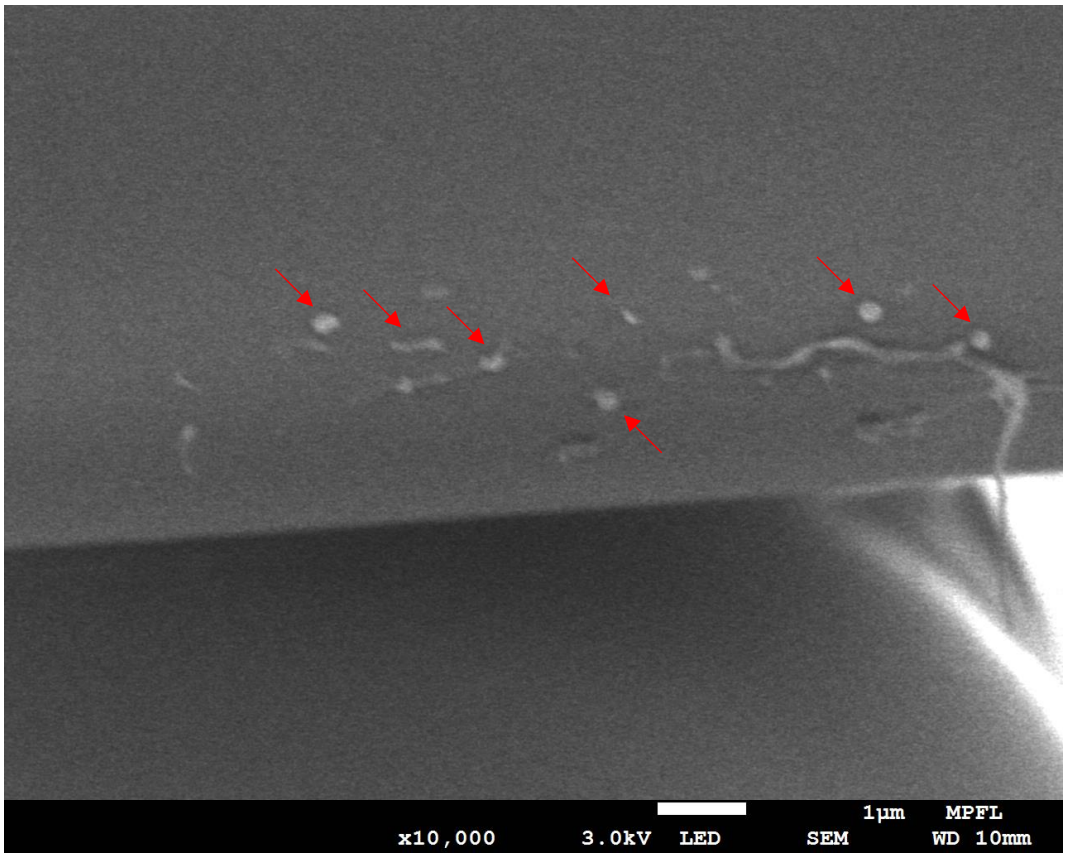
Where shown, dashed rectangles denote approximate boundaries of regions where close-up images were further acquired. Blue arrows denote microsized particles, fragments, or fibers. Red arrows denote particles and fragments in the sub-micron (< 1 μm) or nanosized (<100 nm) range. Objects are only marked selectively as examples of loosely attached debris based on our visual analysis.

Product (a): Type: medical face mask, conforms to GB 19083-2003 standard; Best-selling status: #1 on Tmall.com, #2 on Taobao.com, in product category: medical masks (purchased on May 20, 2020)

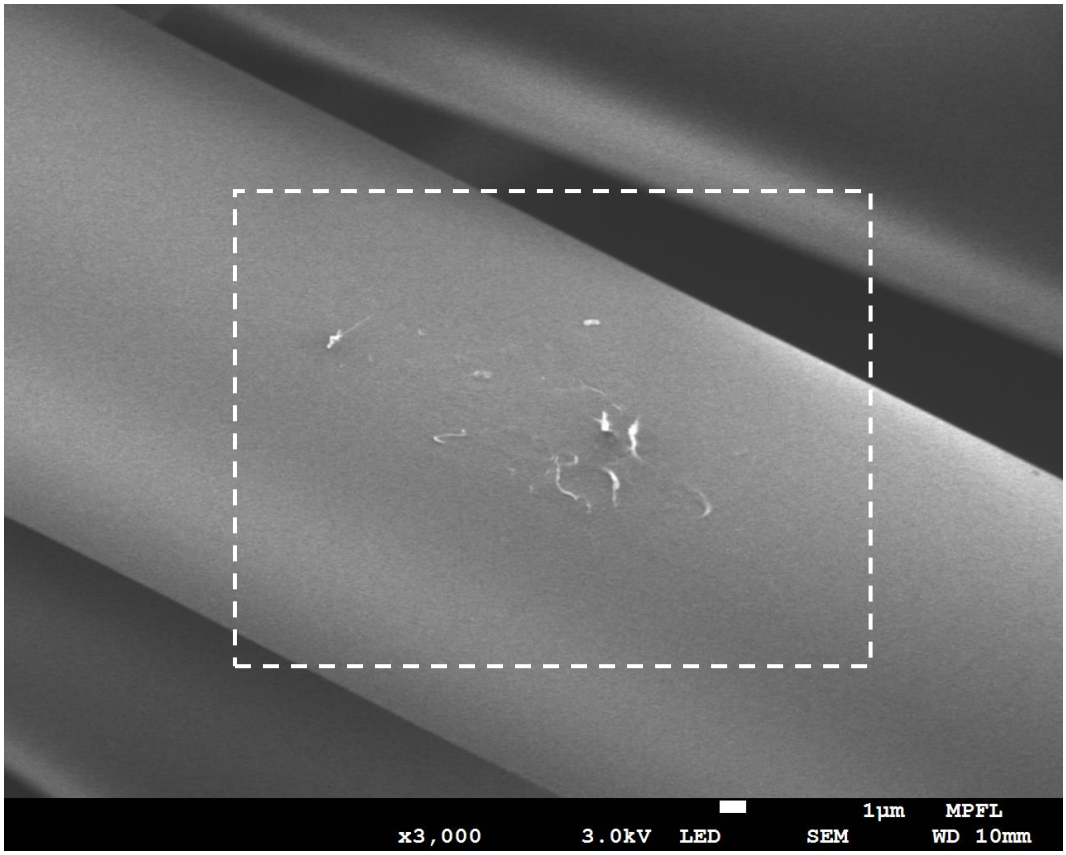
Parent & close-ups, Region #1

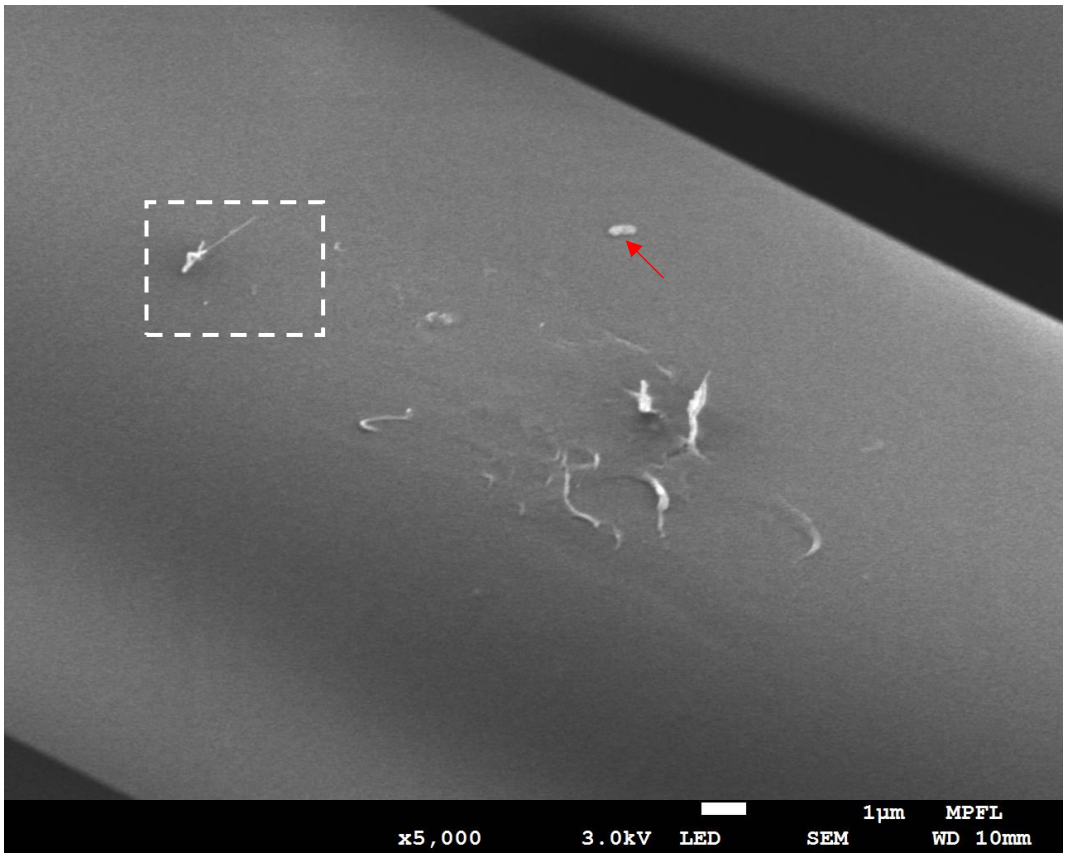






Parent & close-ups, Region #2

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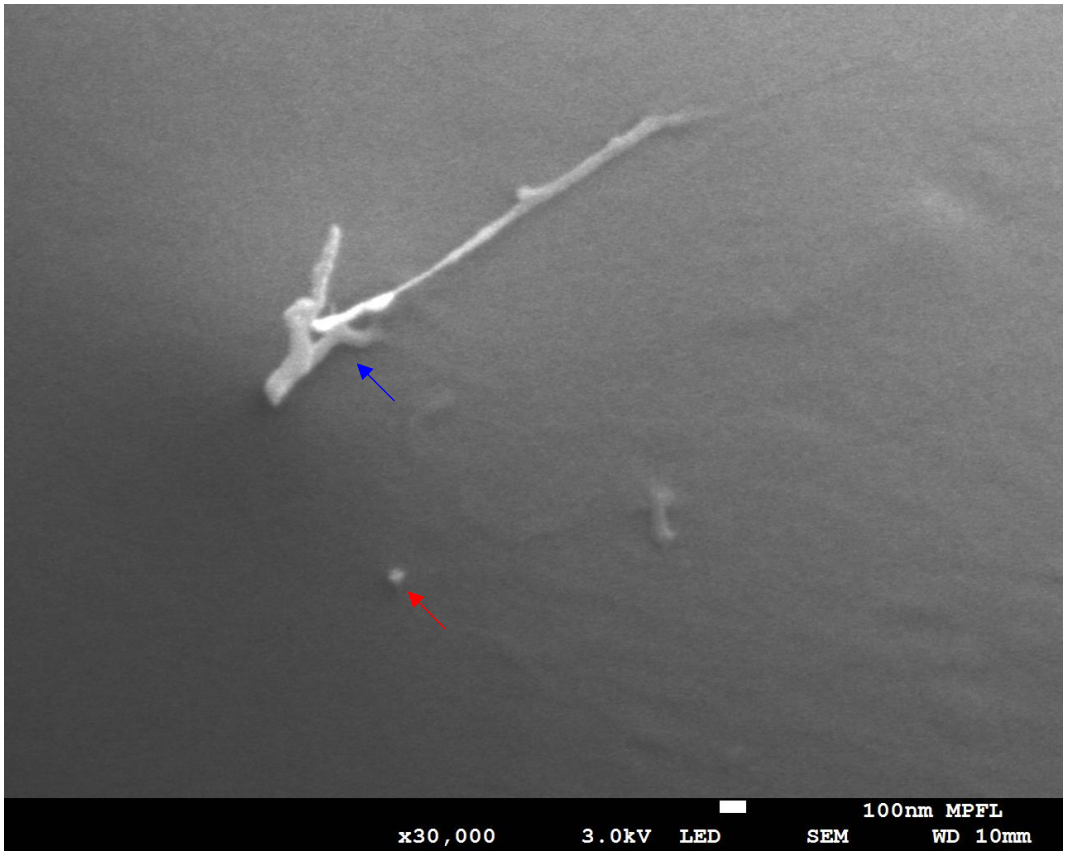
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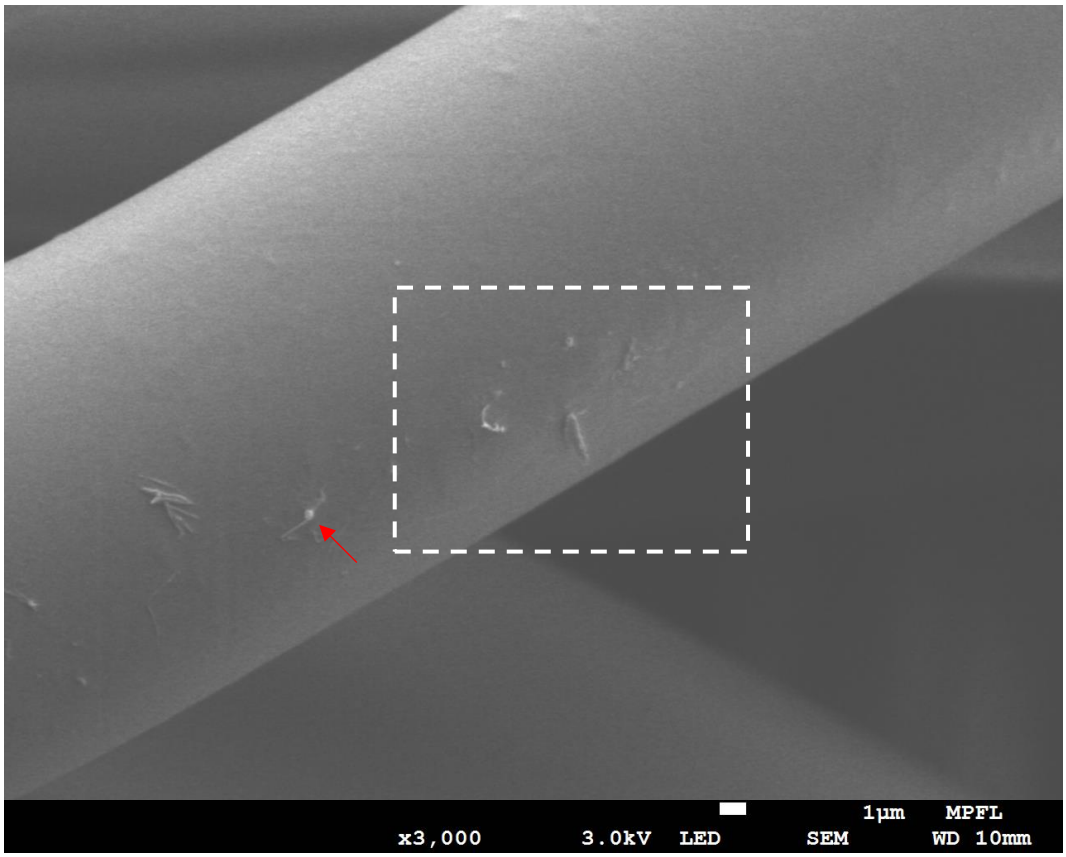
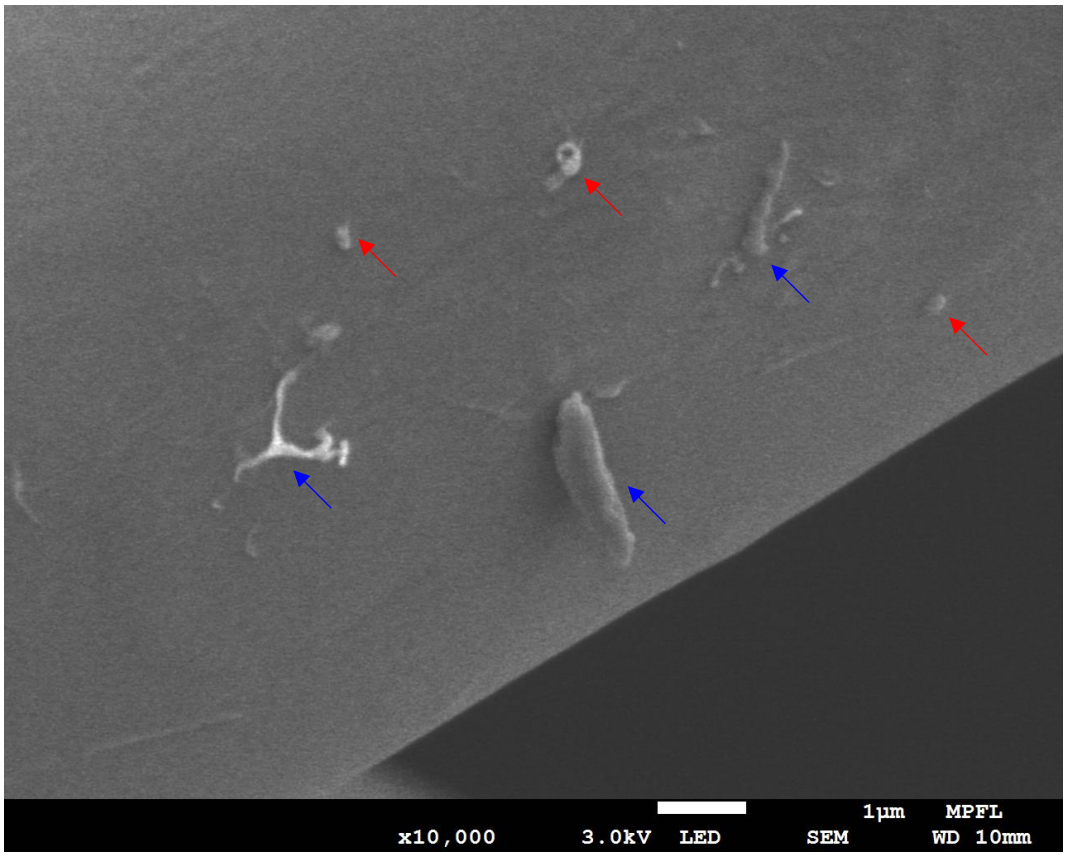
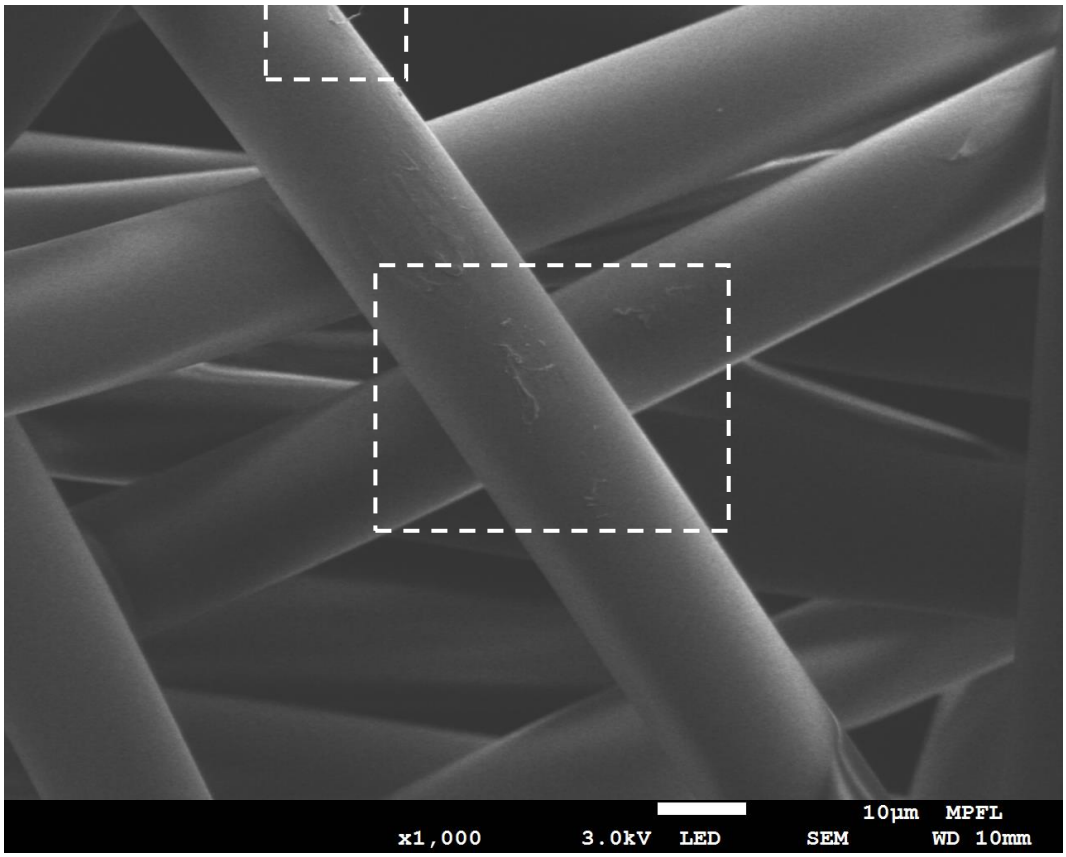
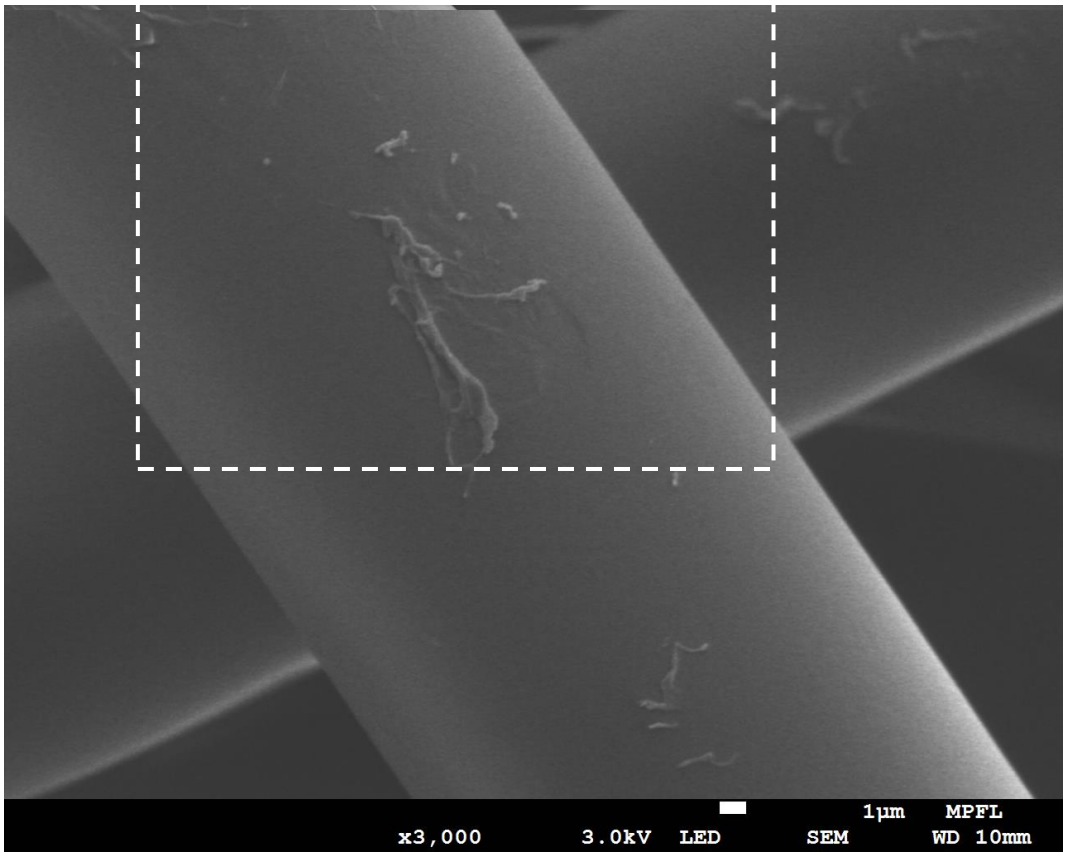
Parent & close-ups, Region #3

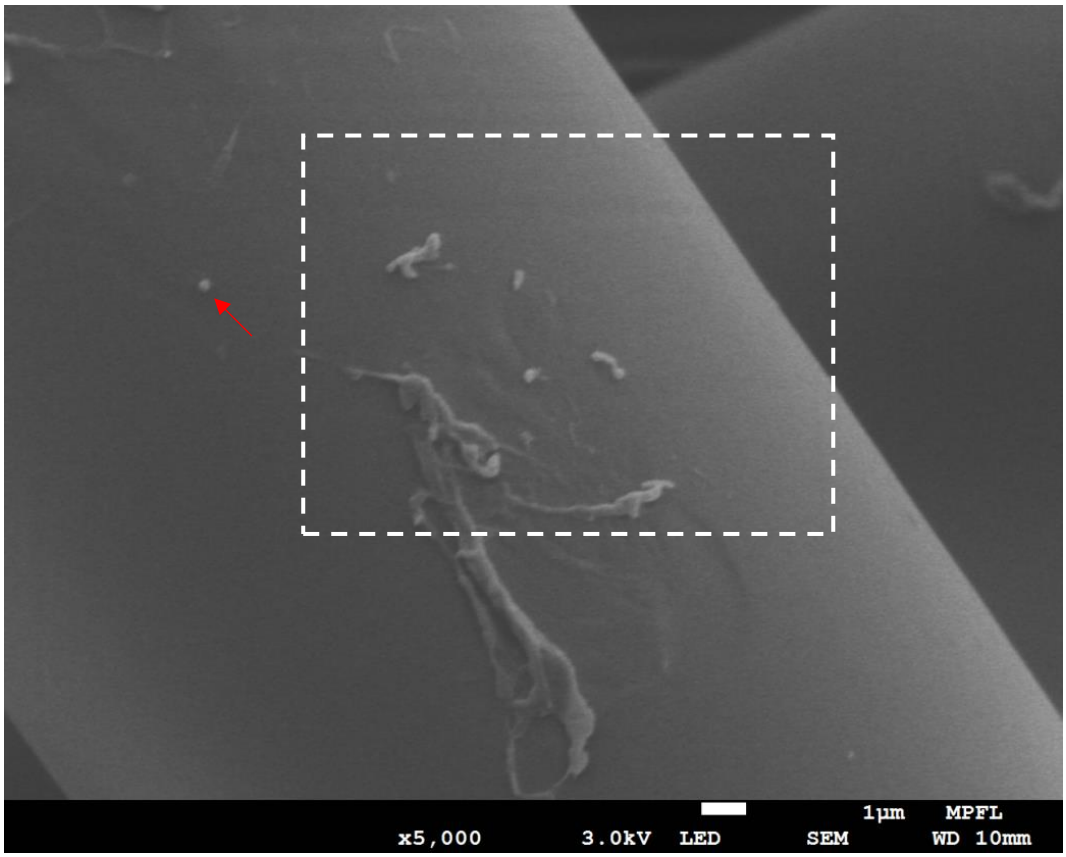




Parent & close-ups, Region #4



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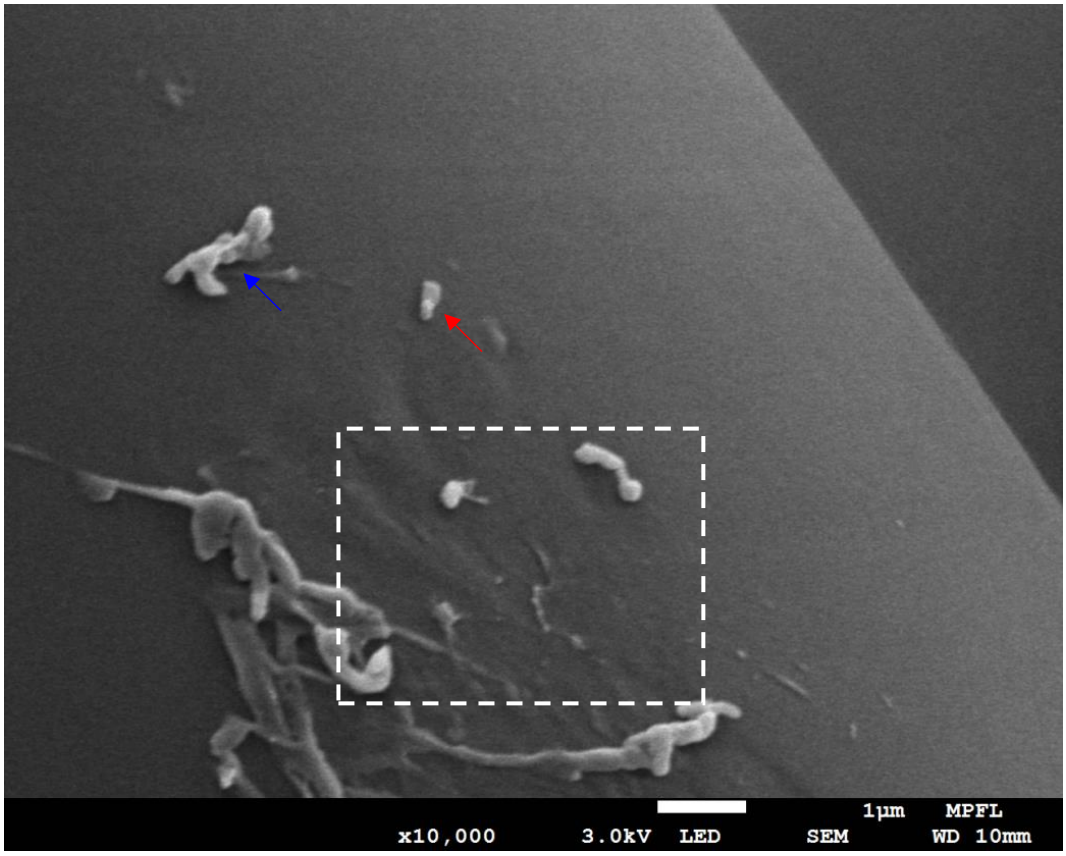
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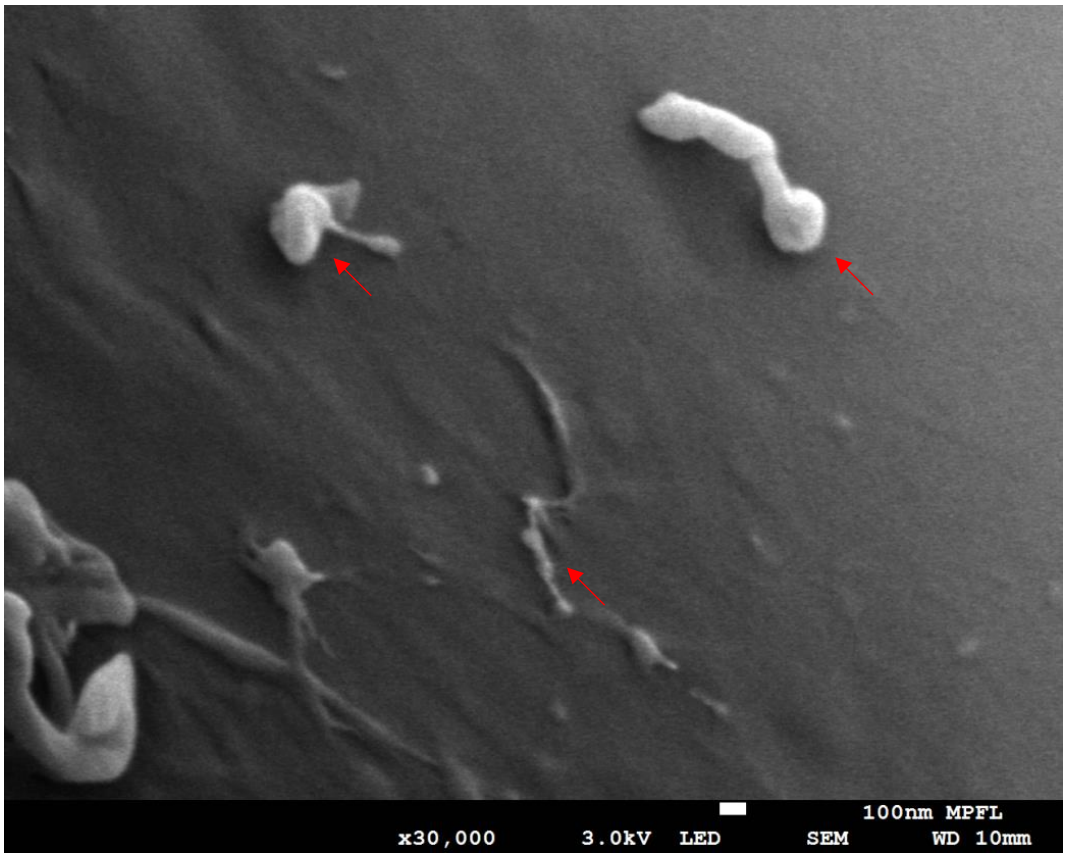
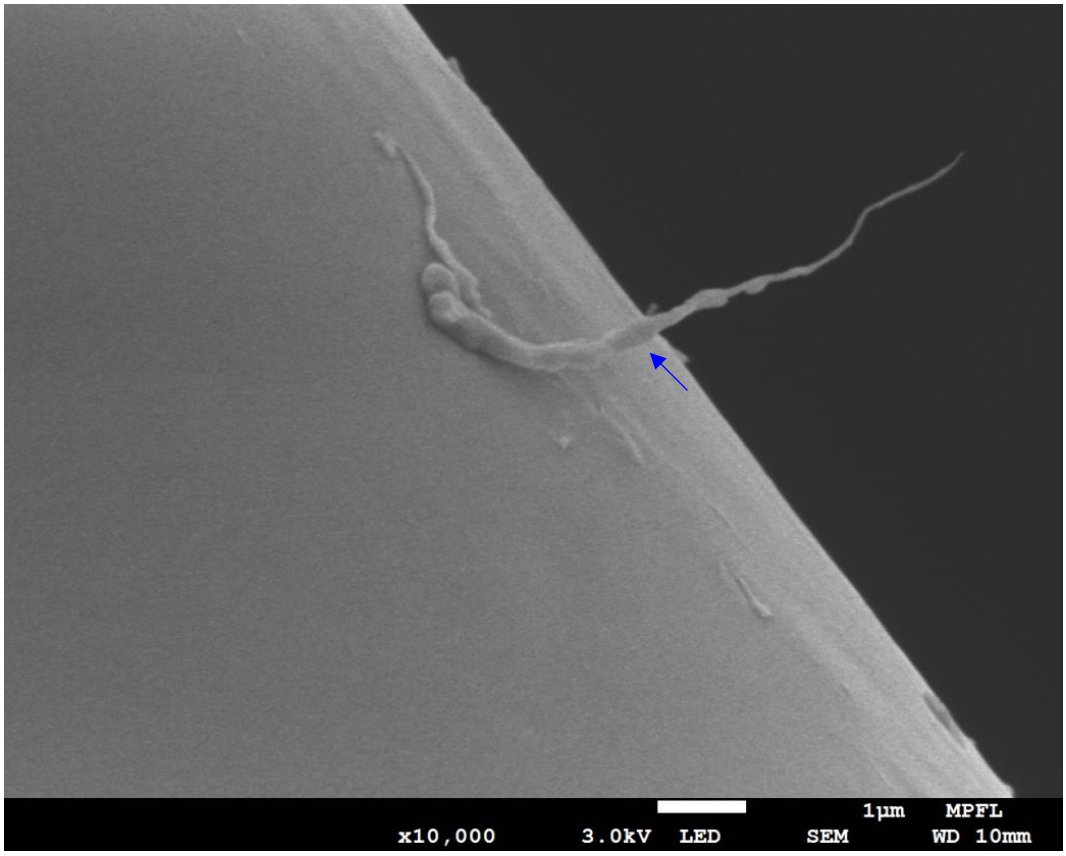
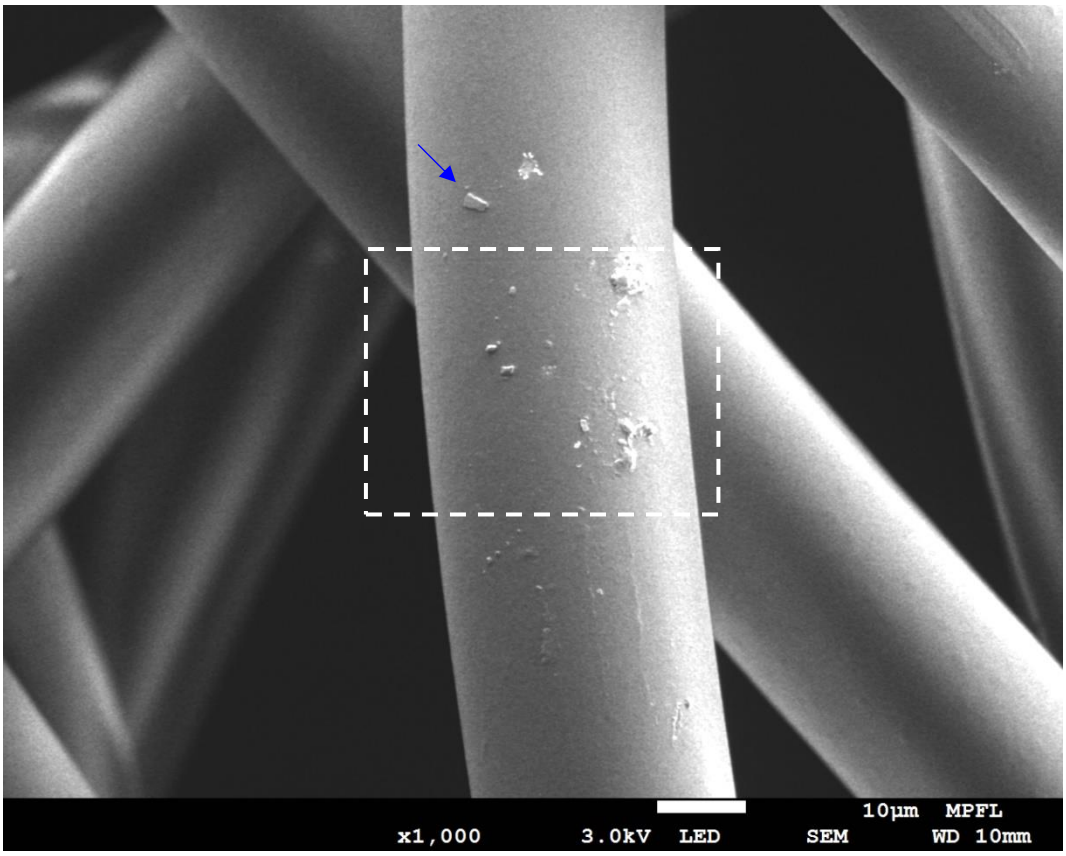
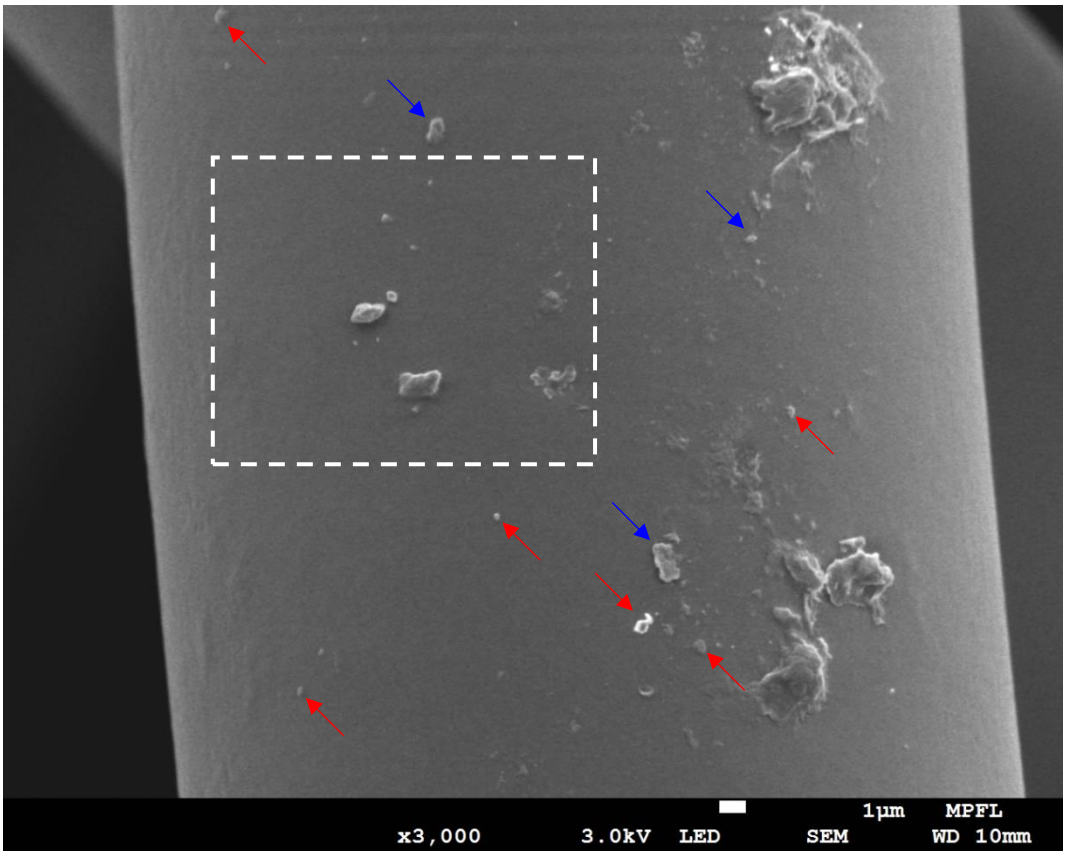

100nm MPFL
x30,000 3.0kV LED SEM WD 10mm

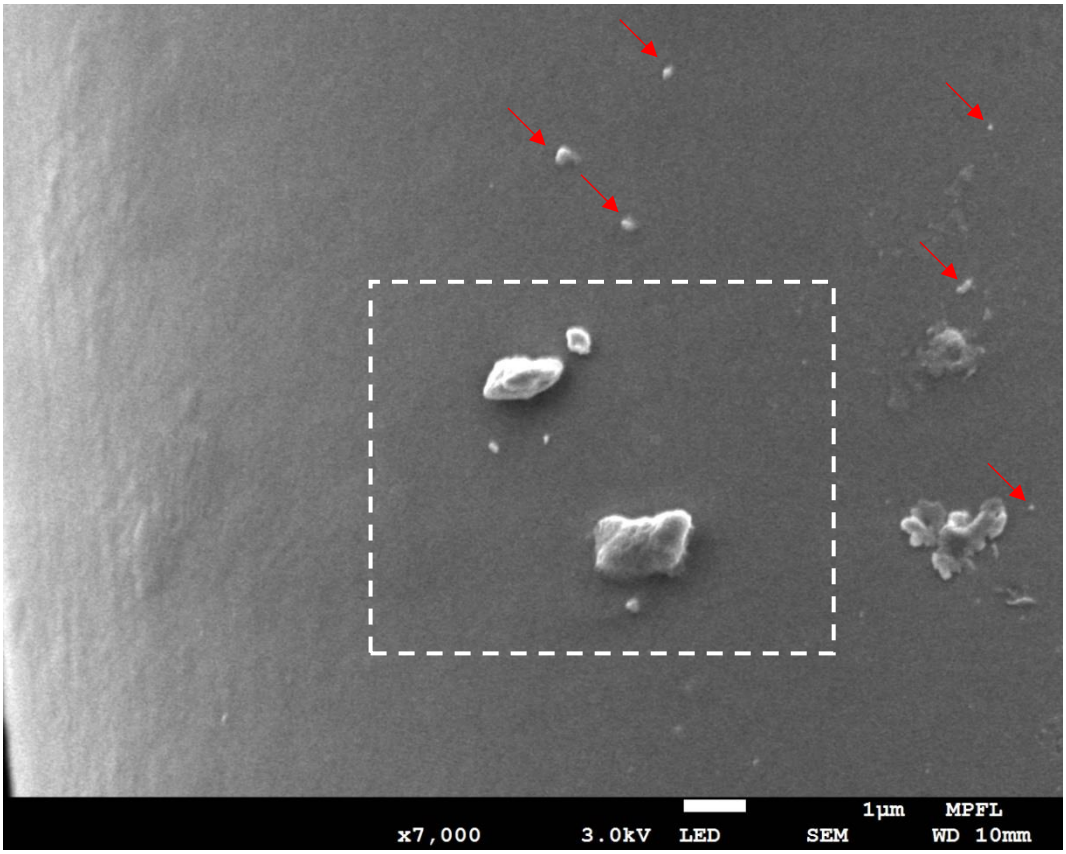

1µm MPFL
x10,000 3.0kV LED SEM WD 10mm

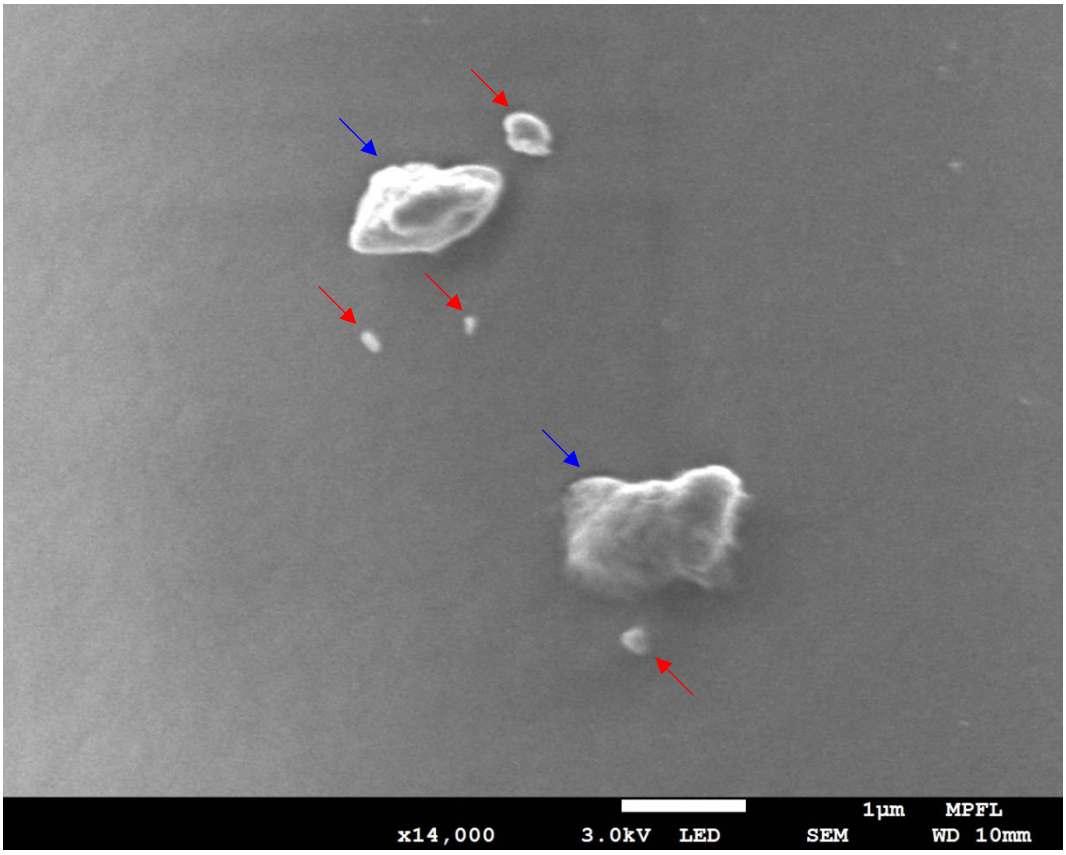
Product (c): Type: KN95 respirator, conforms to GB 2626-2006 standard; Best-selling status: #1 on Taobao.com, #1 on Tmall.com, in product category: N95/KN95 respirators (purchased on May 20, 2020)

Parent & close-ups, Region #1






x7,000 3.0kV LED SEM 1µm MPFL WD 10mm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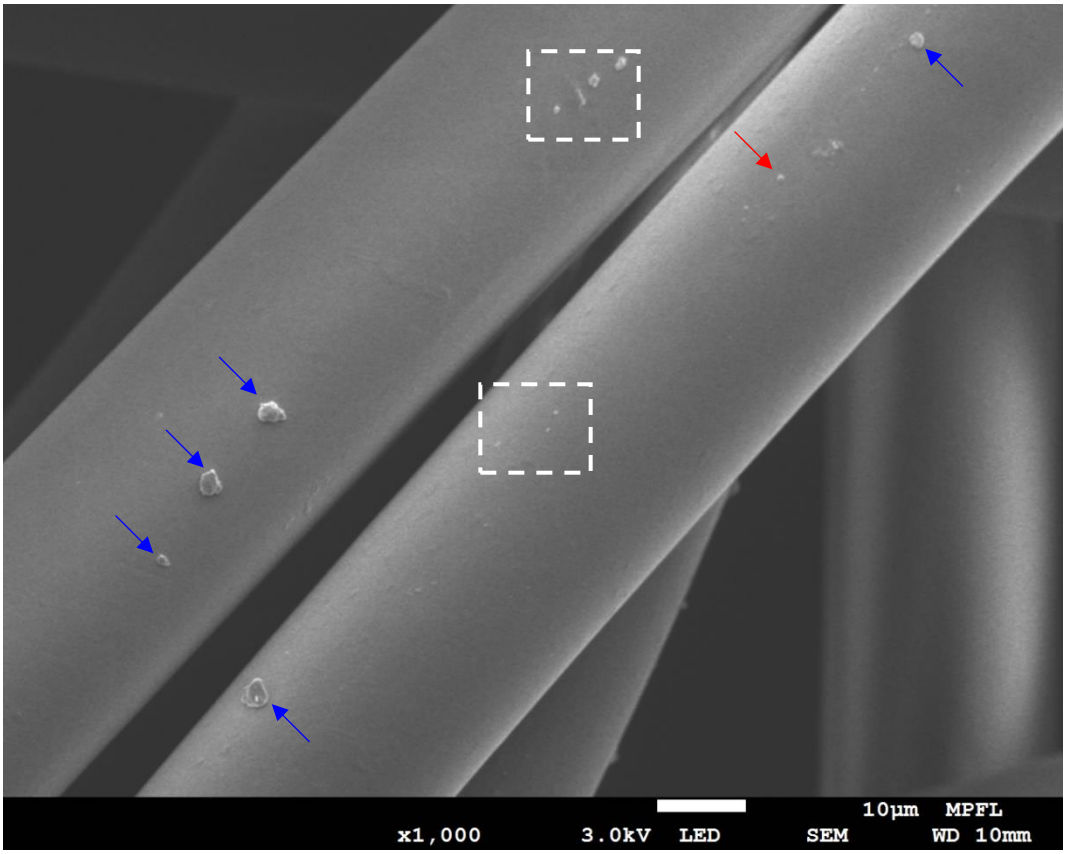
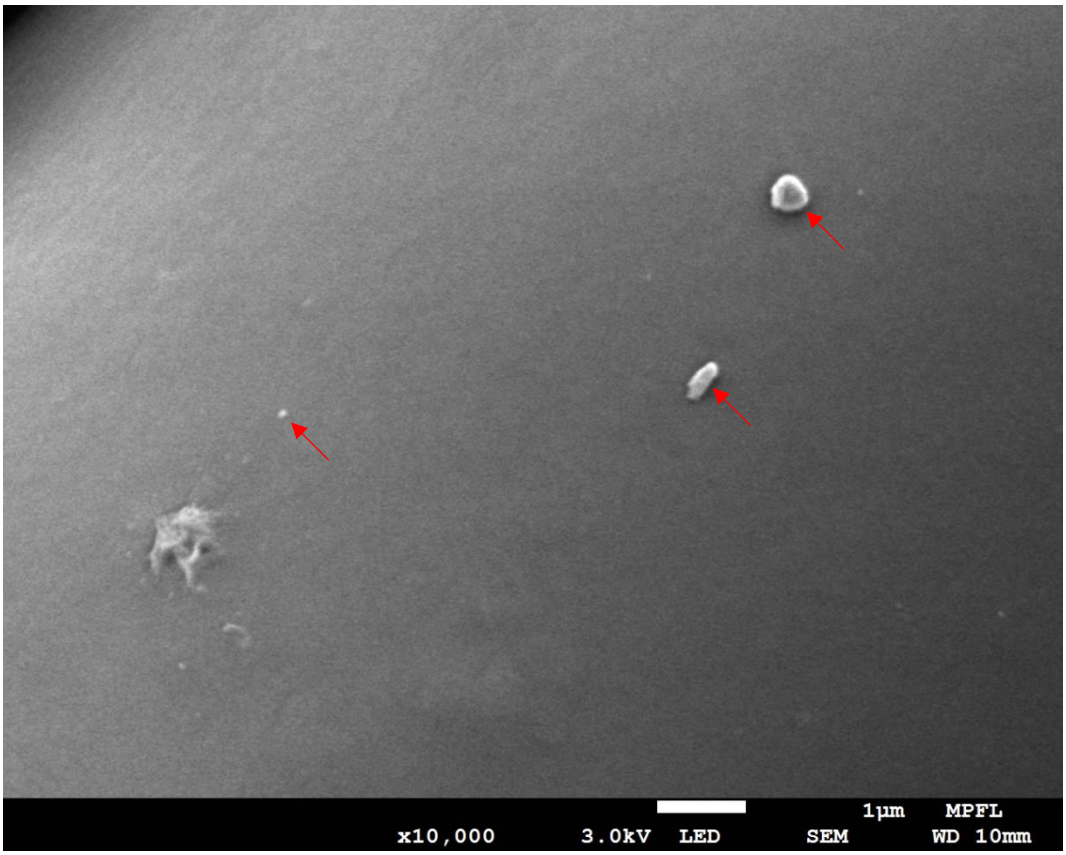
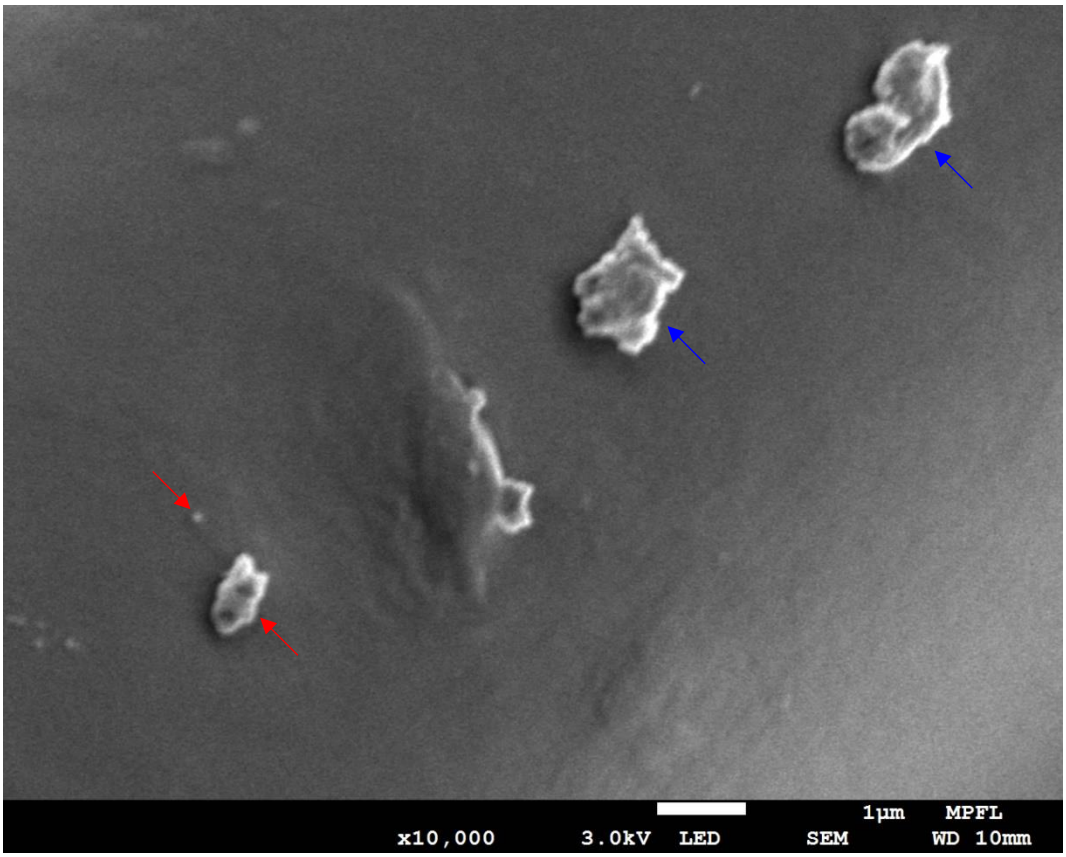
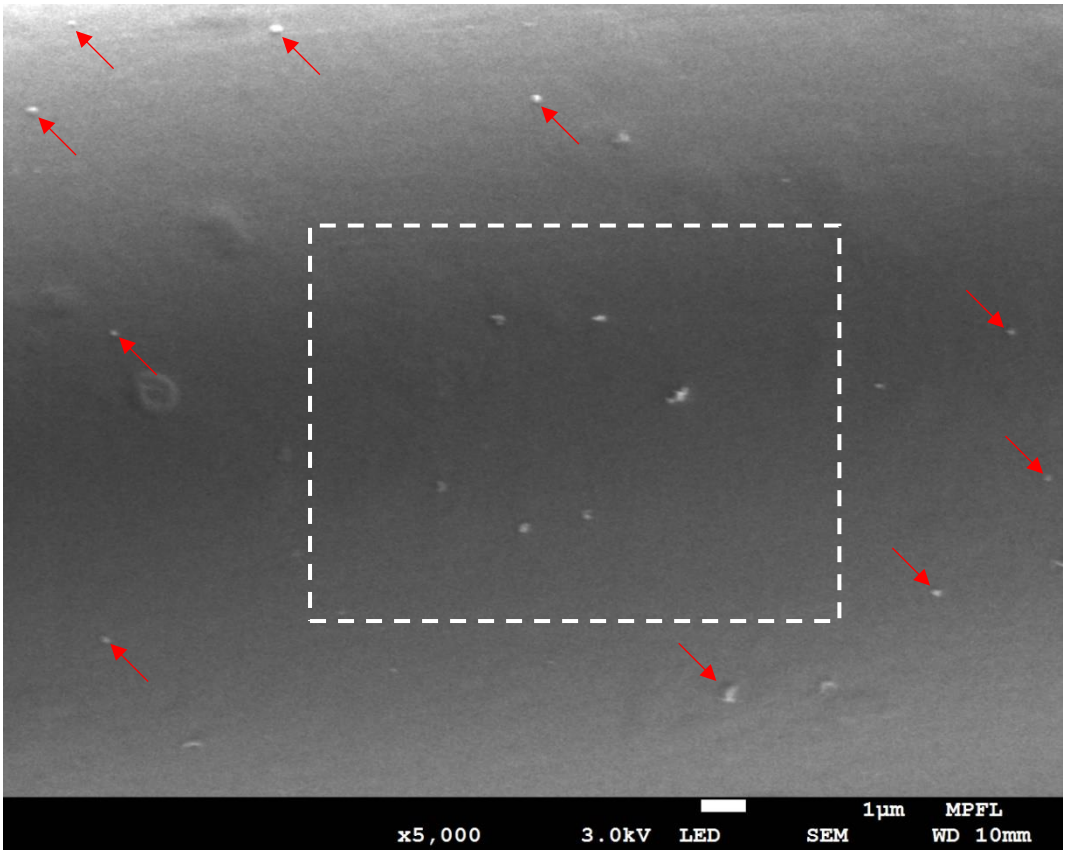
Parent & close-ups, Region #2

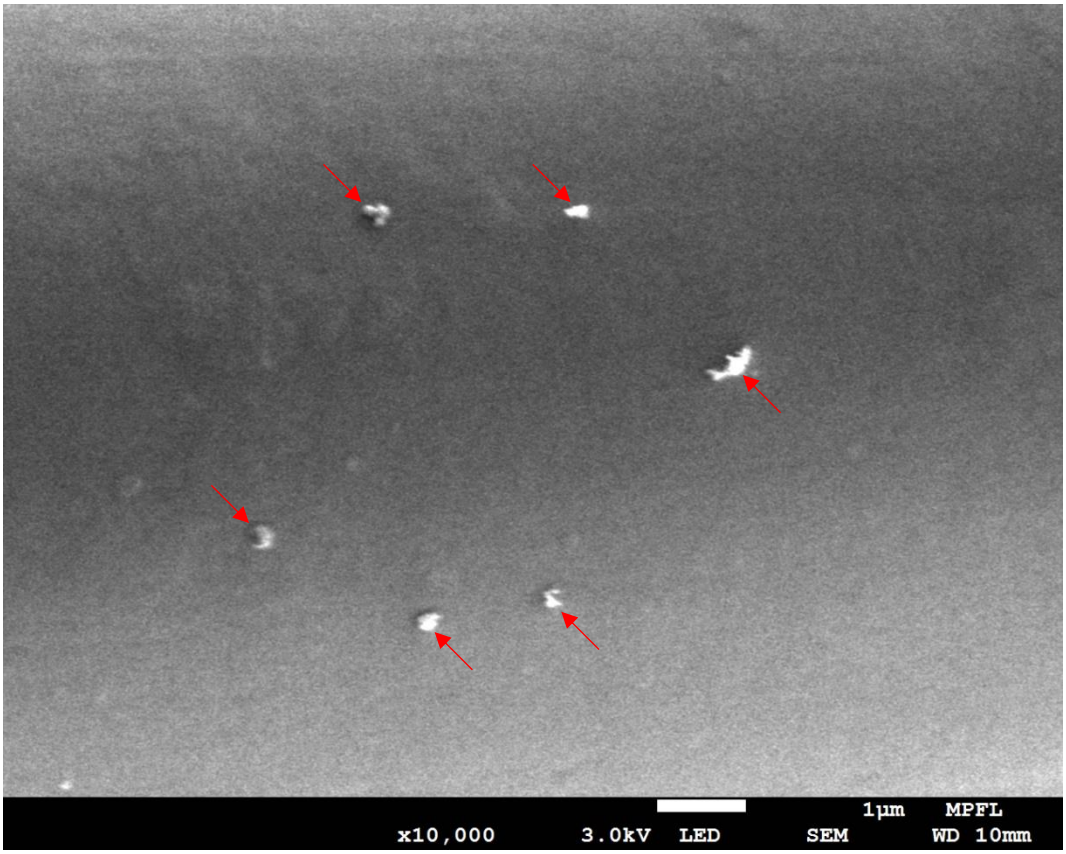




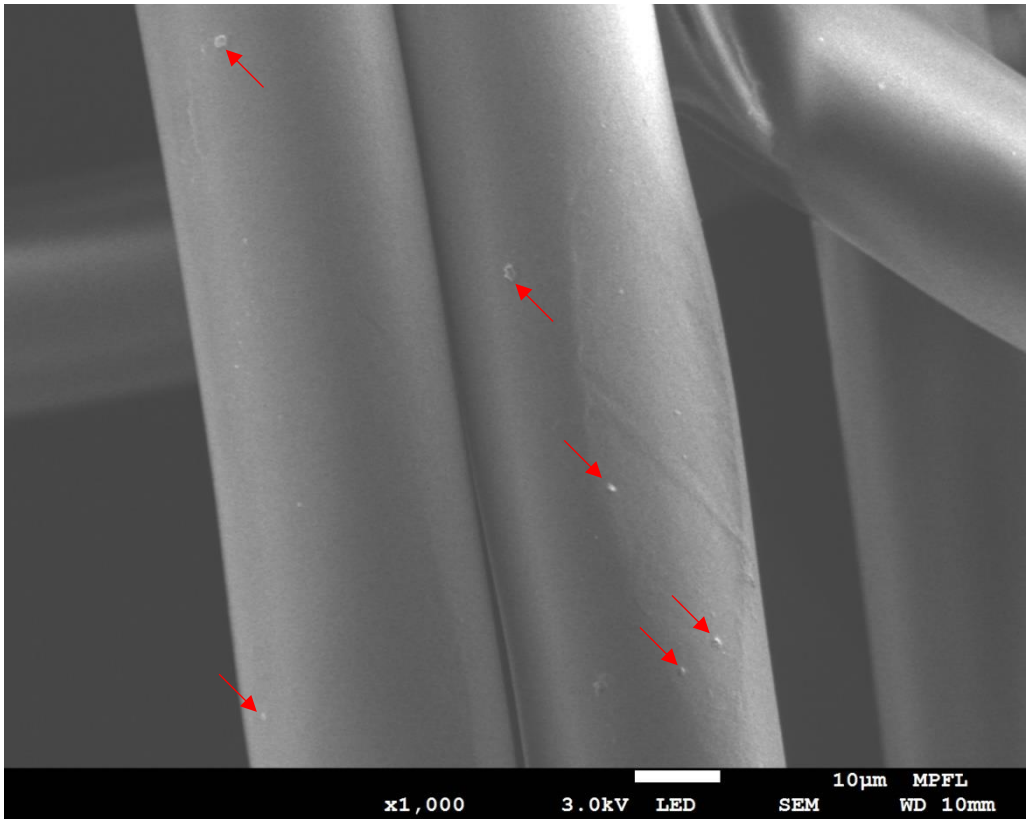


Parent & close-ups, Region #3

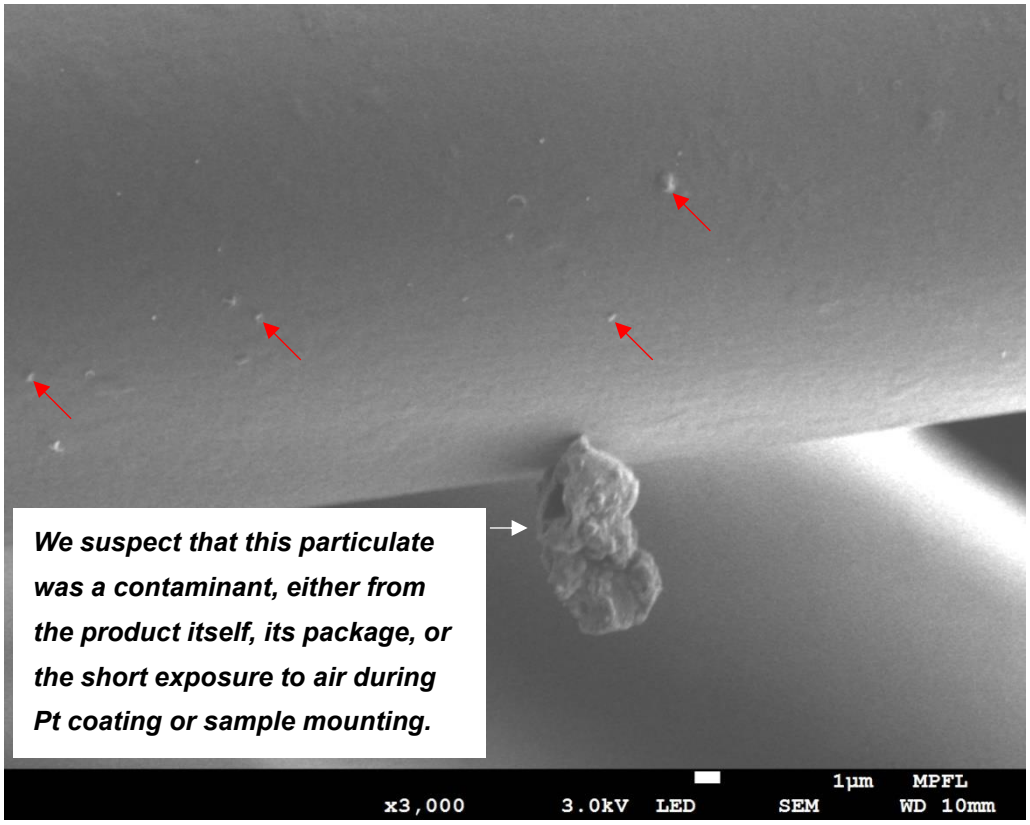




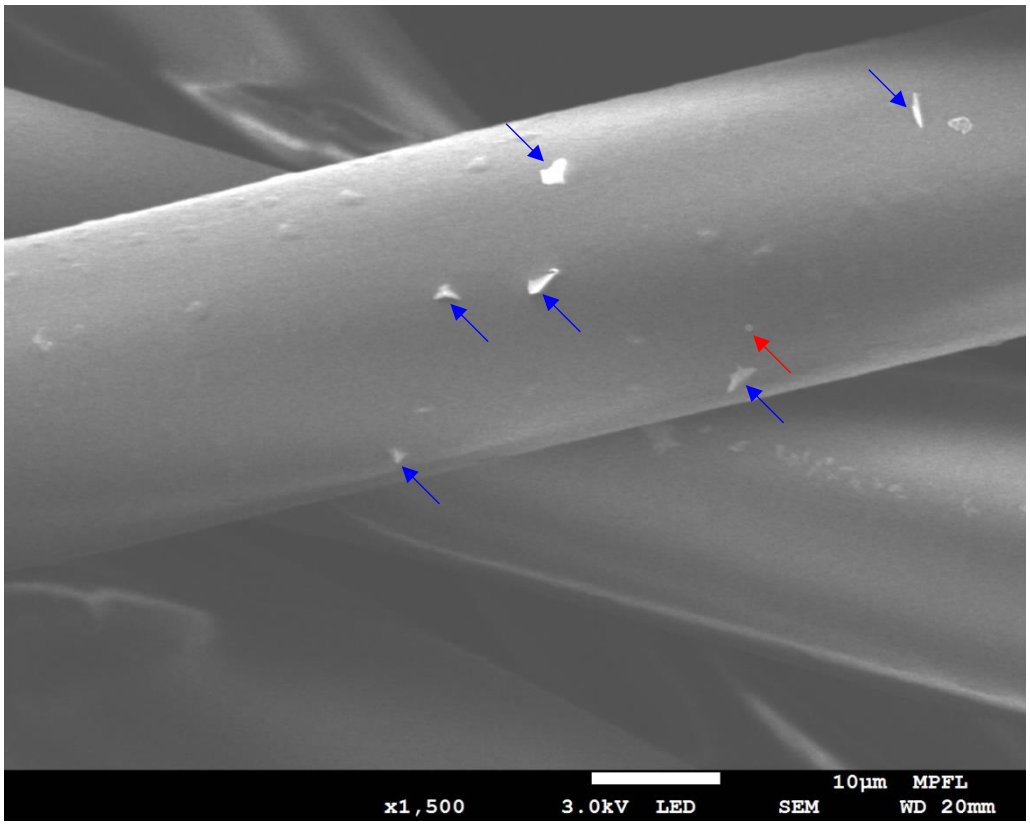
Random spot #1



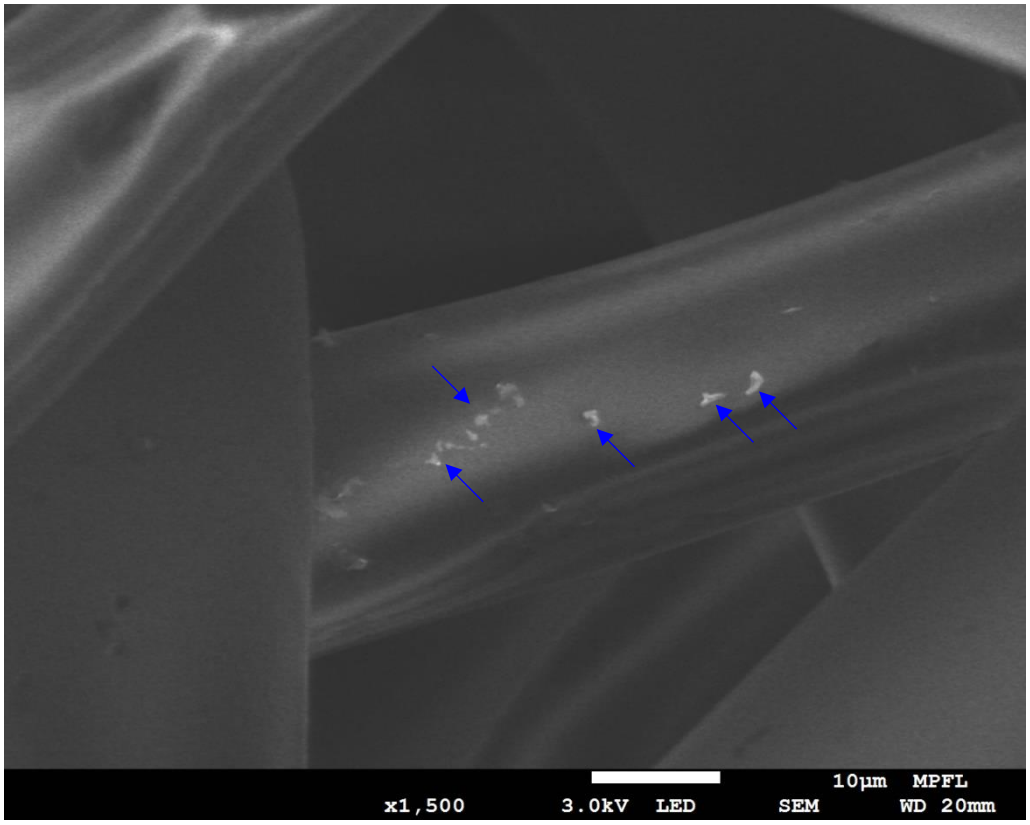
Random spot #2



Random spot #3

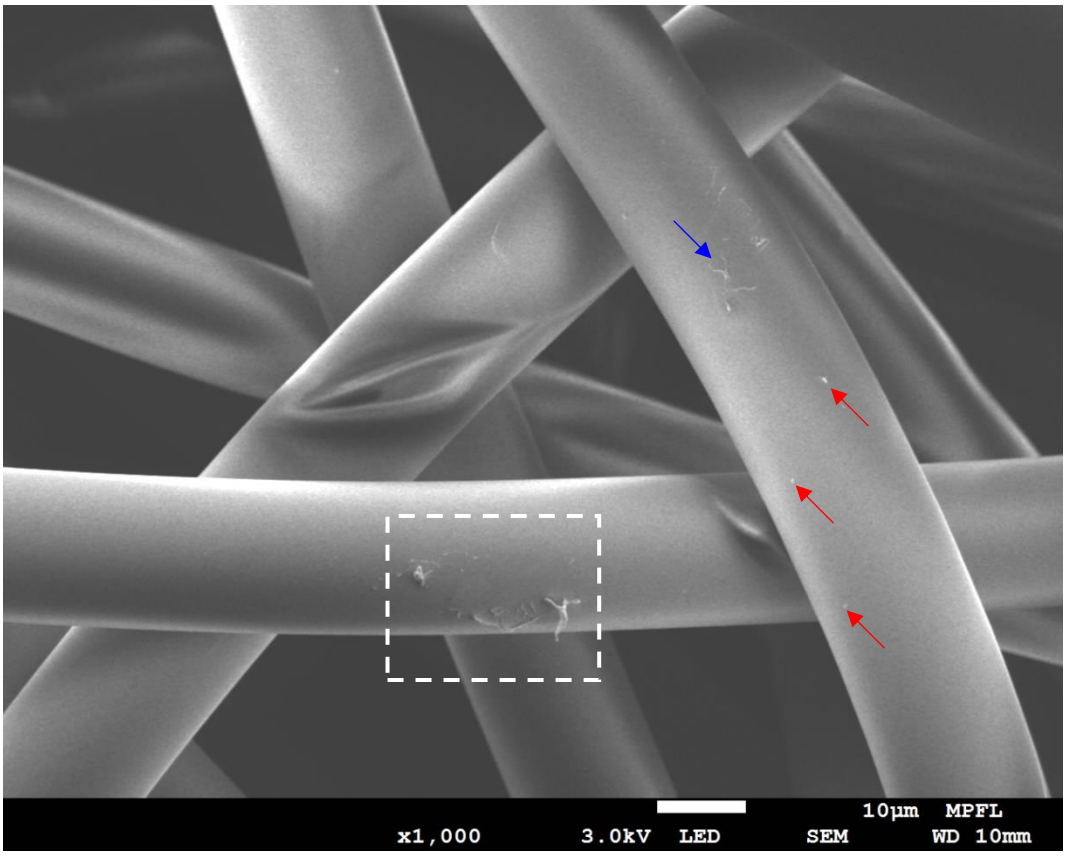


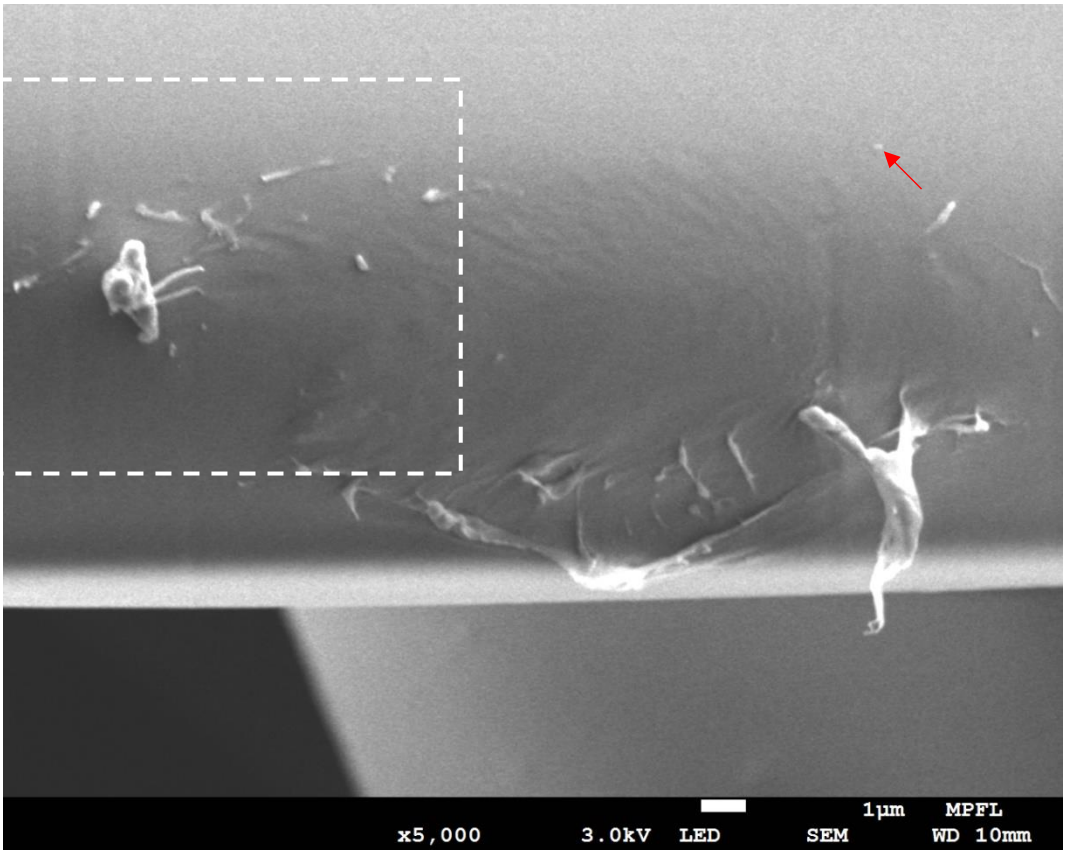
Random spot #4

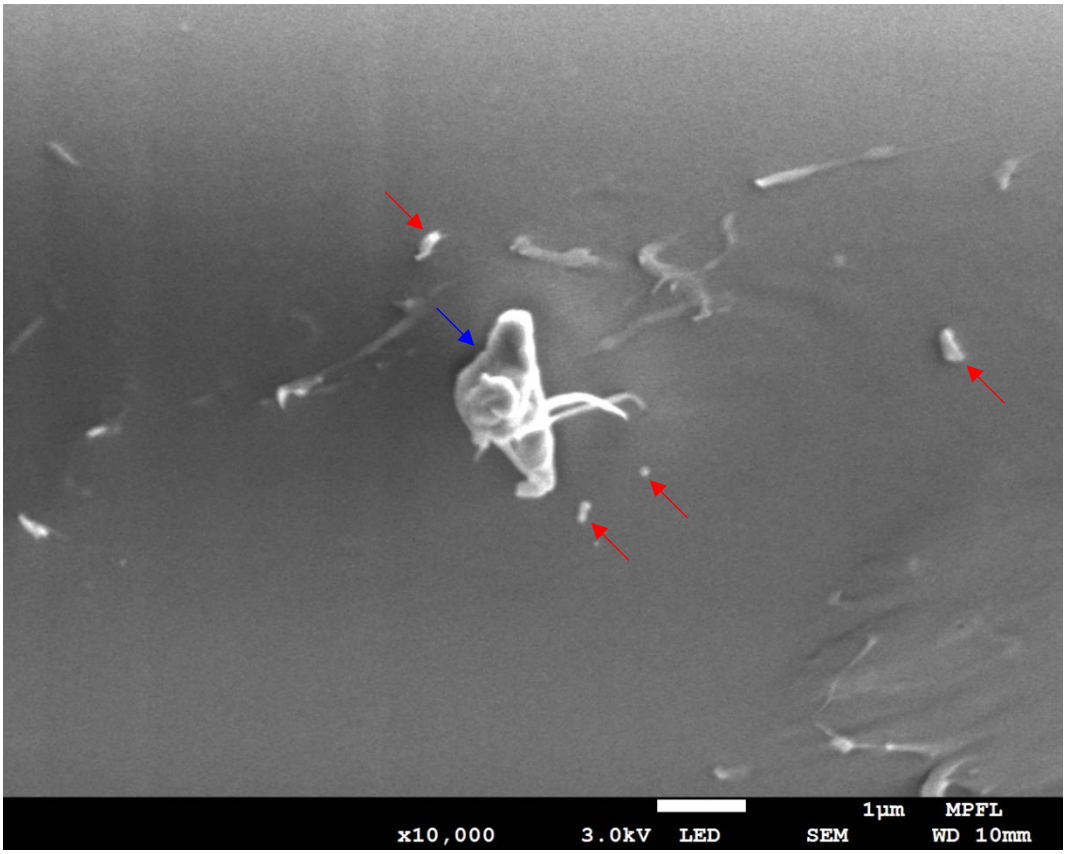


Product (d); Type: surgical mask, conforms to YY 0469-2011 standard; Best-selling status: #1 on JD.com, in product category: medical masks (purchased on May 20, 2020)

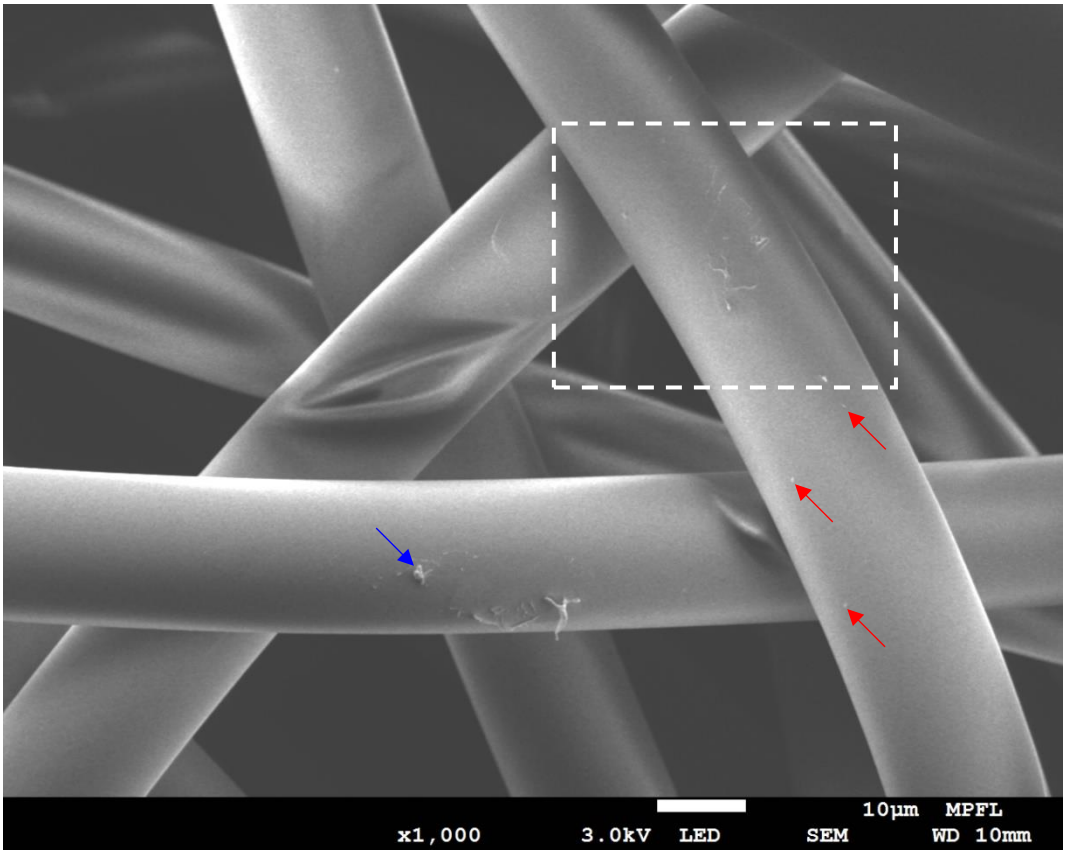
Parent & close-ups, Region #1

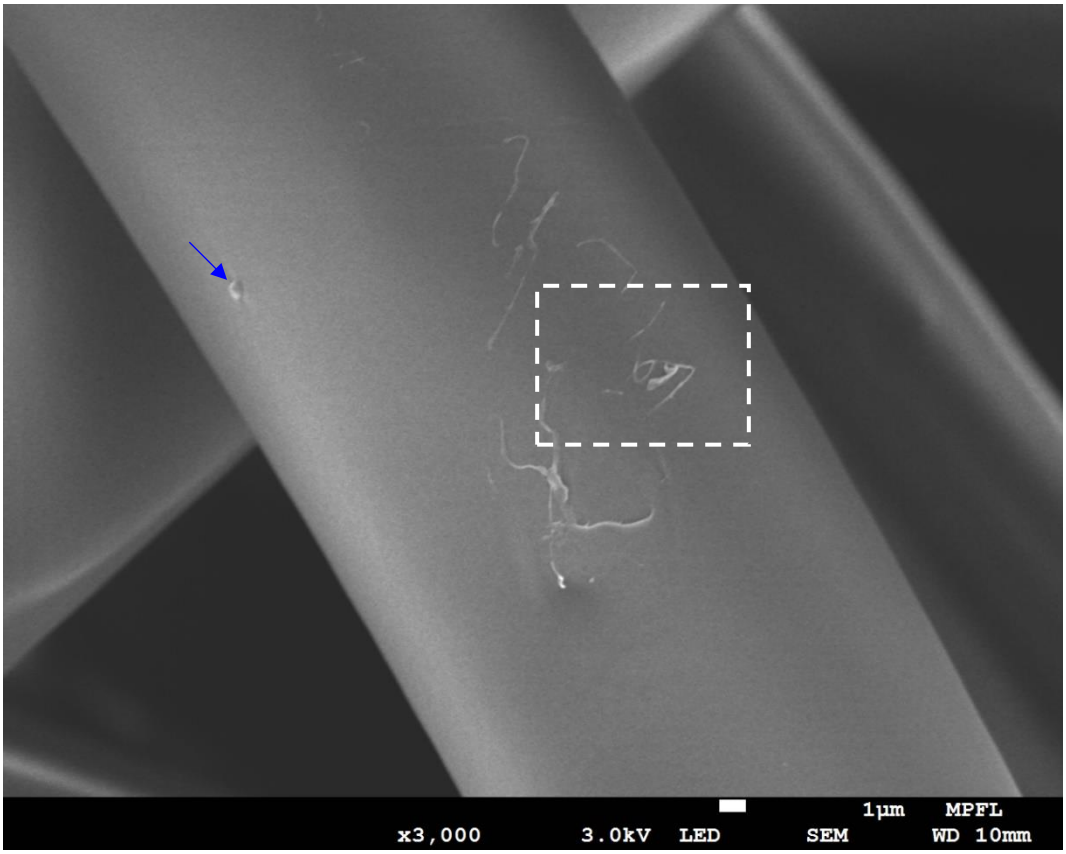






Parent & close-ups, Region #2

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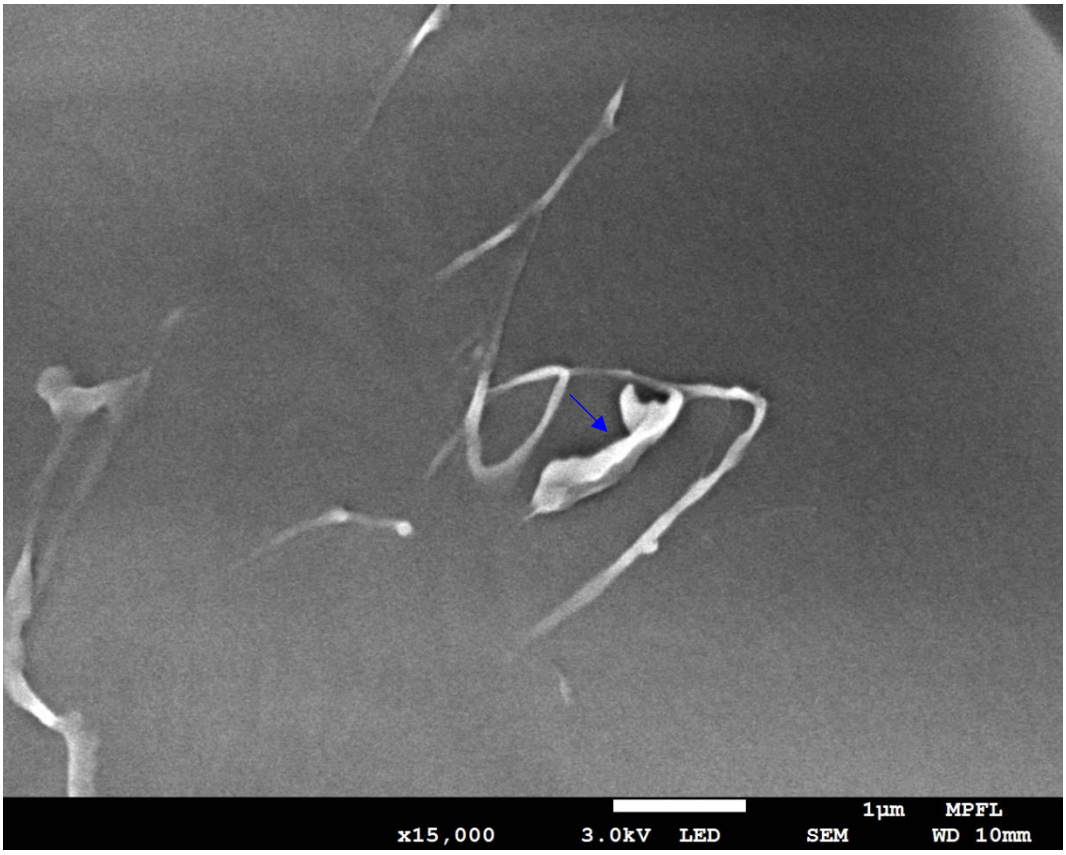
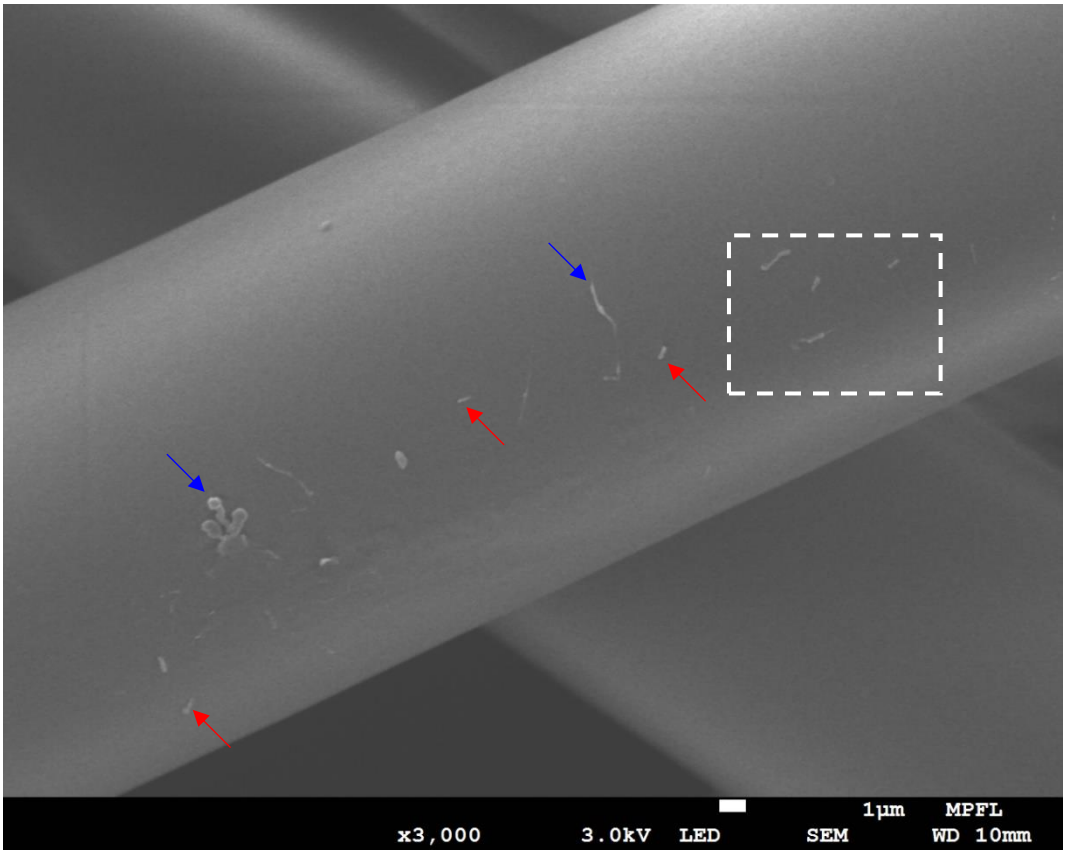
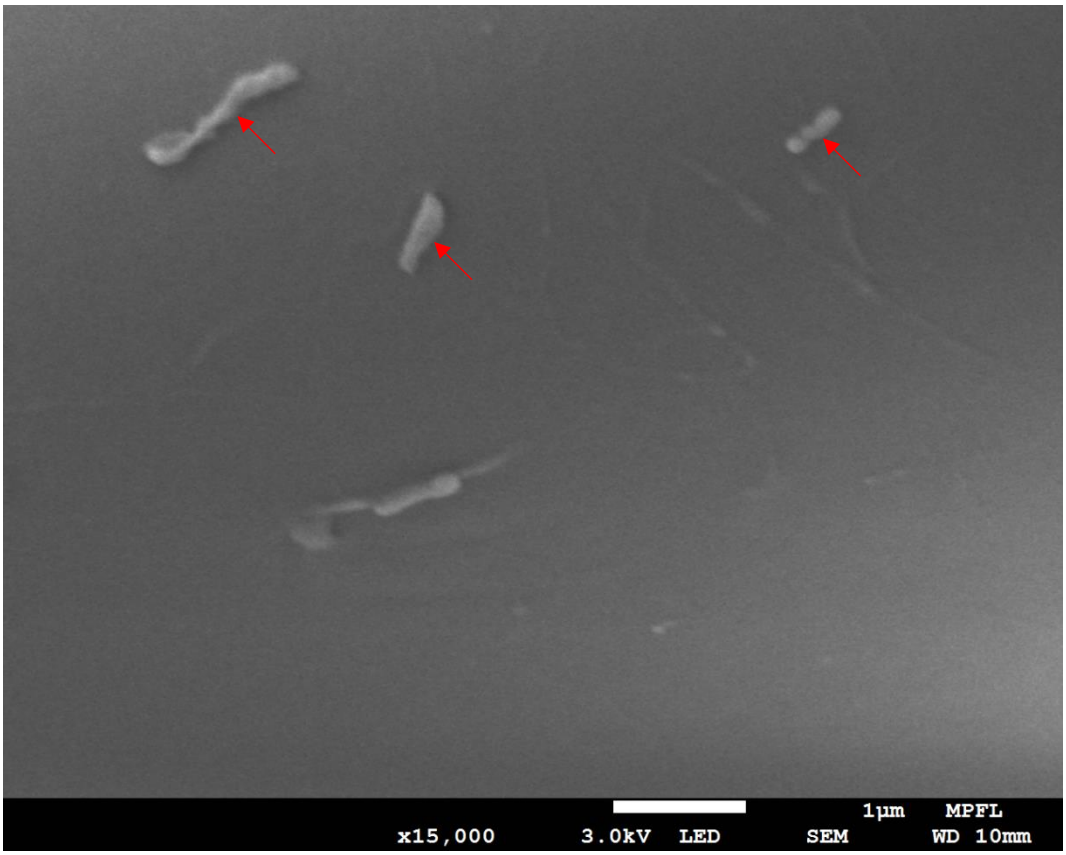
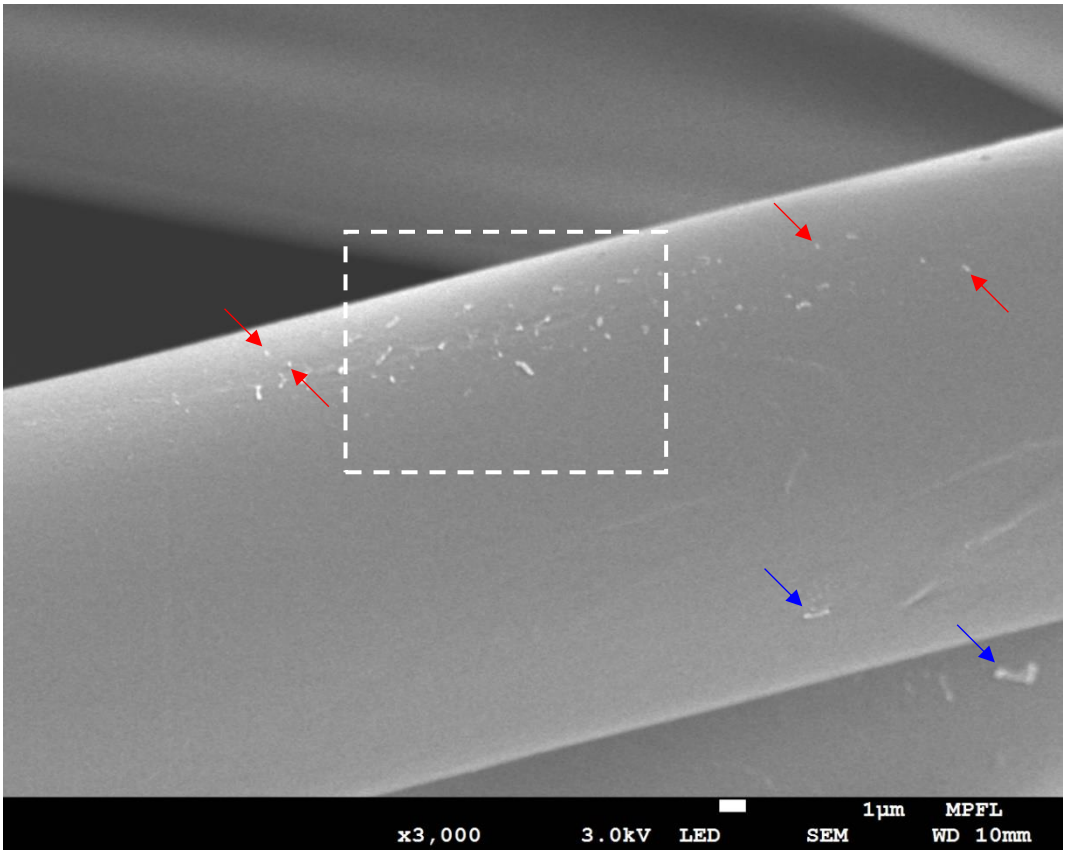

x15,000 3.0kV LED SEM 1µm WD 10mm MPFL

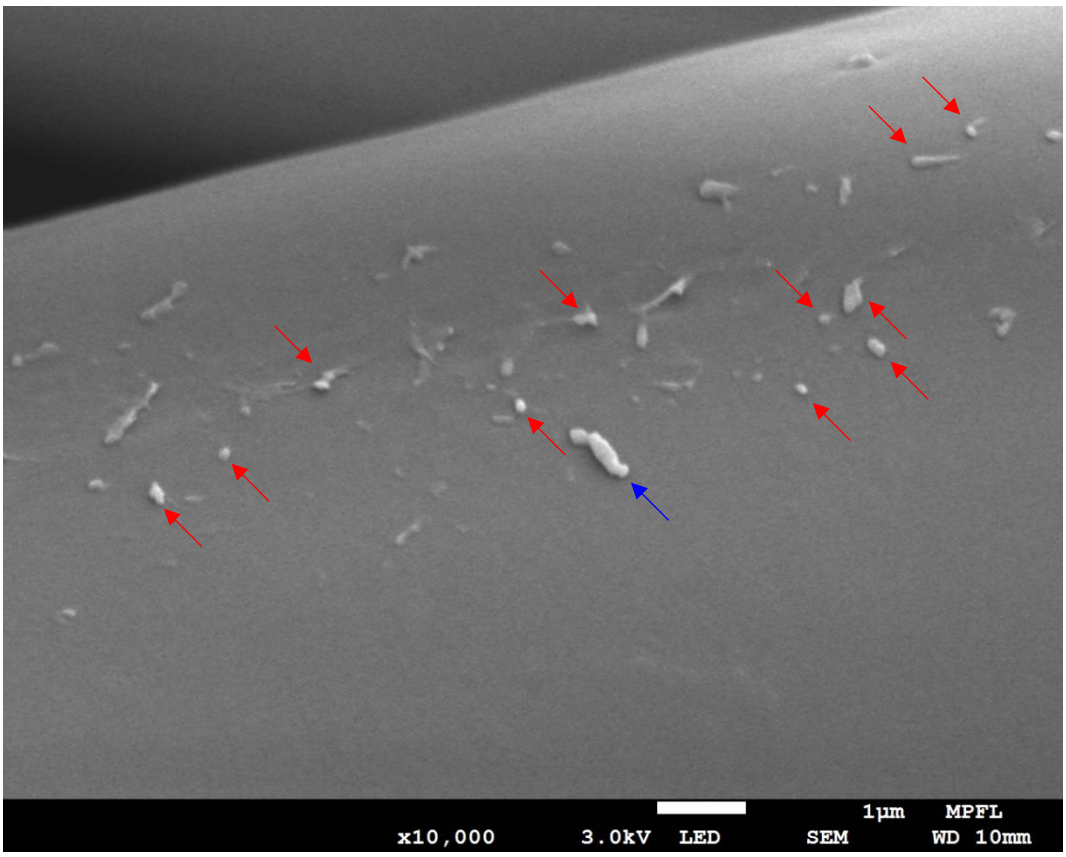
Parent & close-ups, Region #3

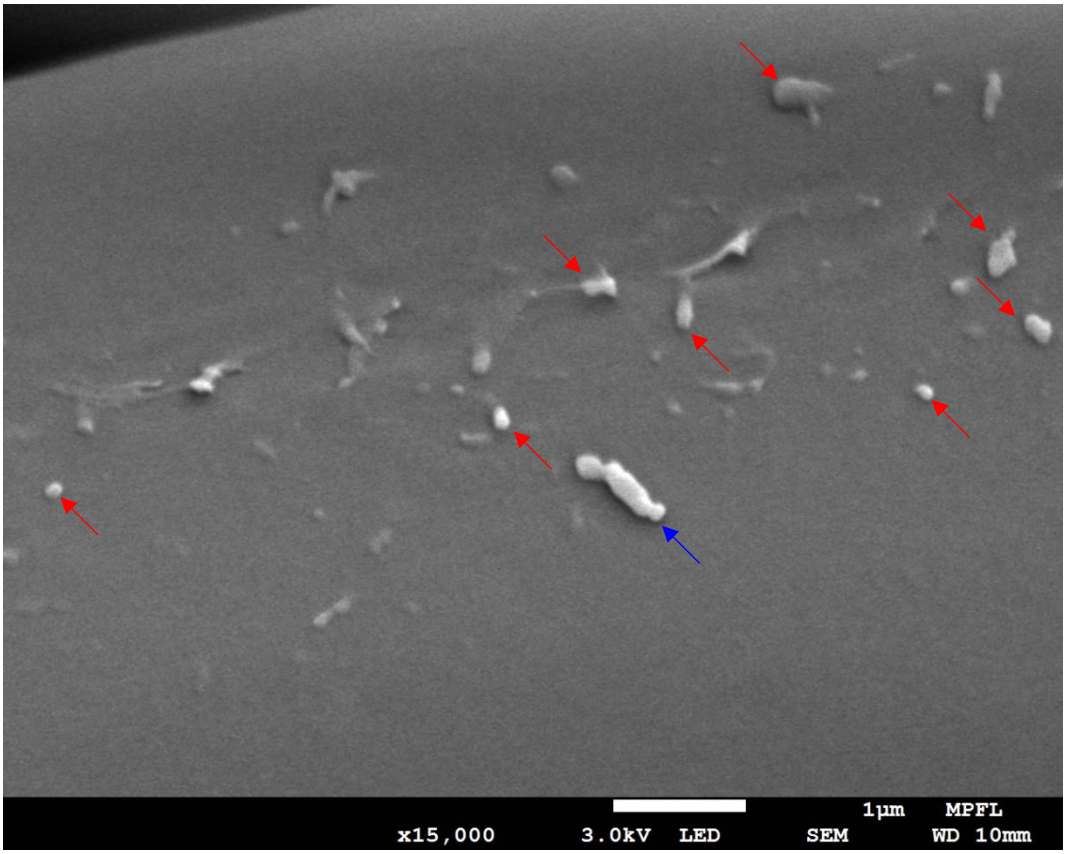




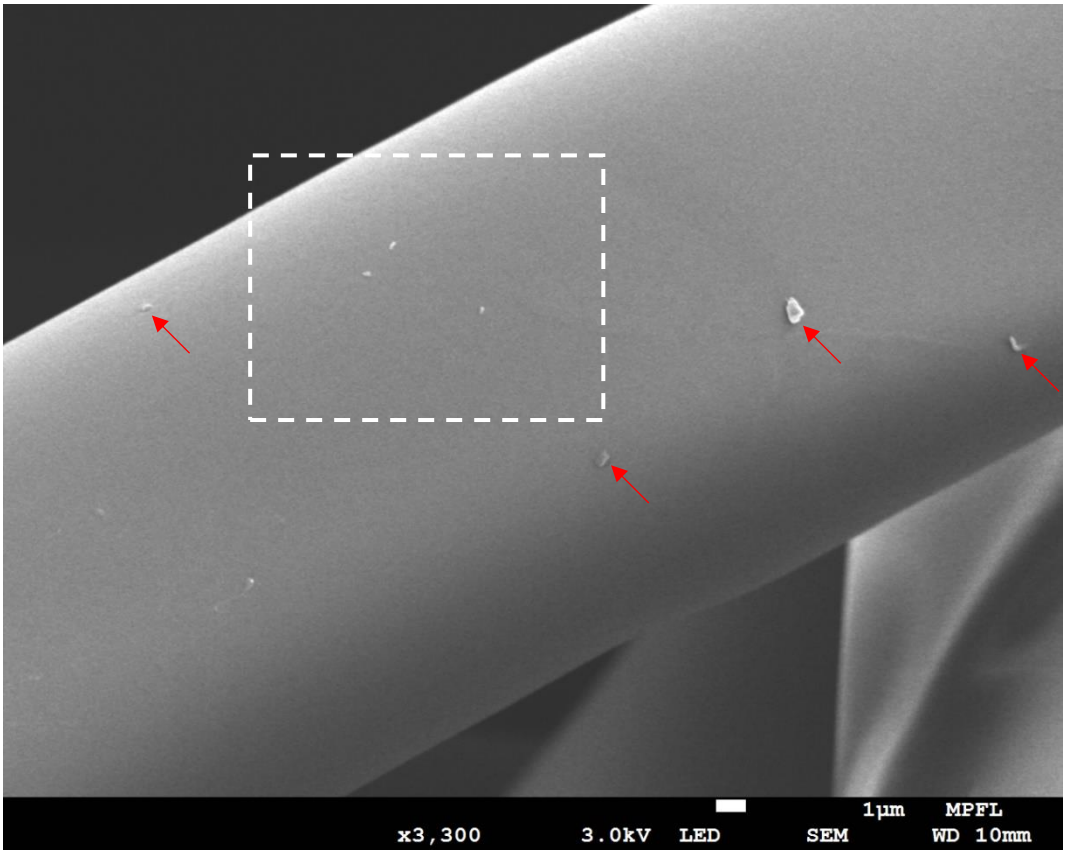
Parent & close-ups, Region #4

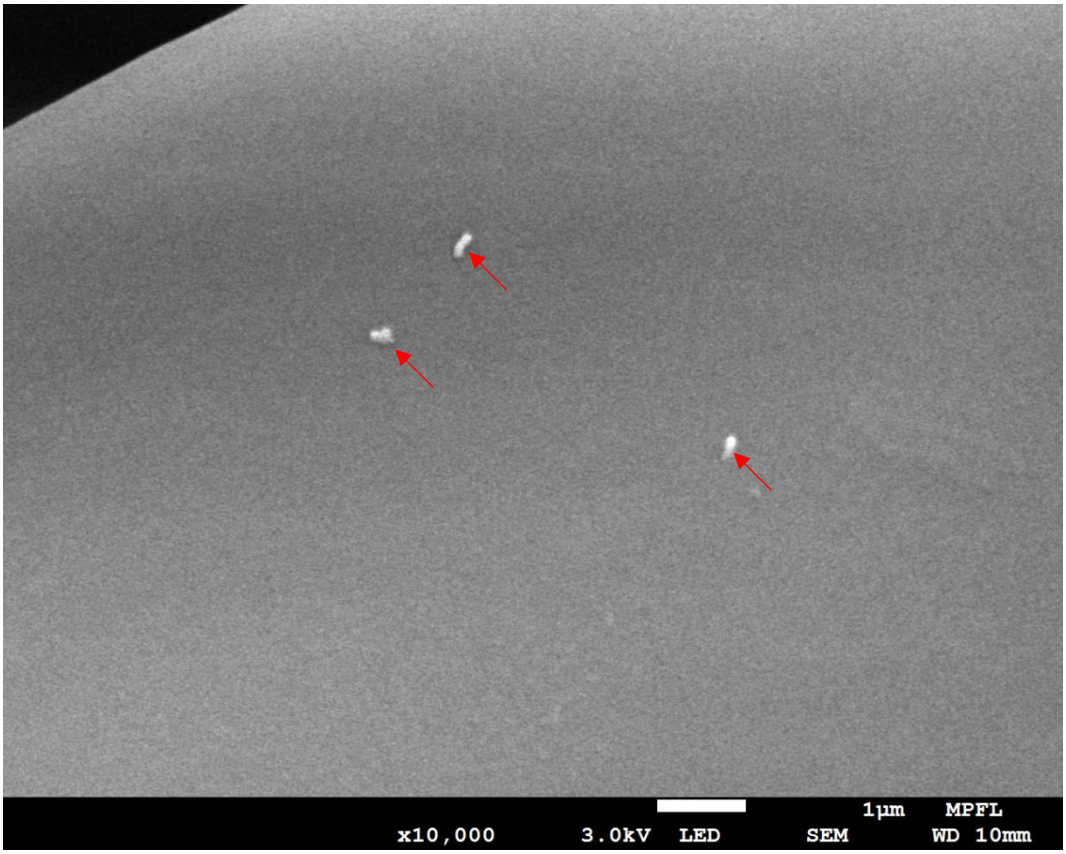




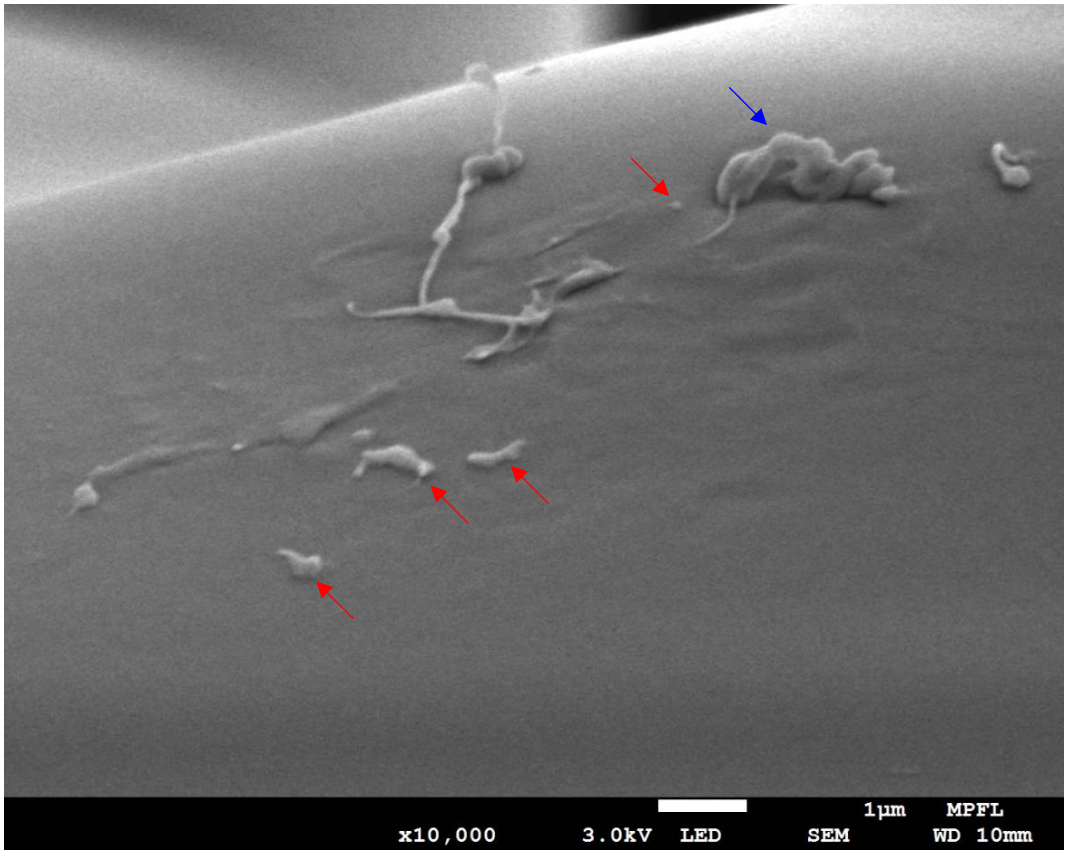


Parent & close-ups, Region #5

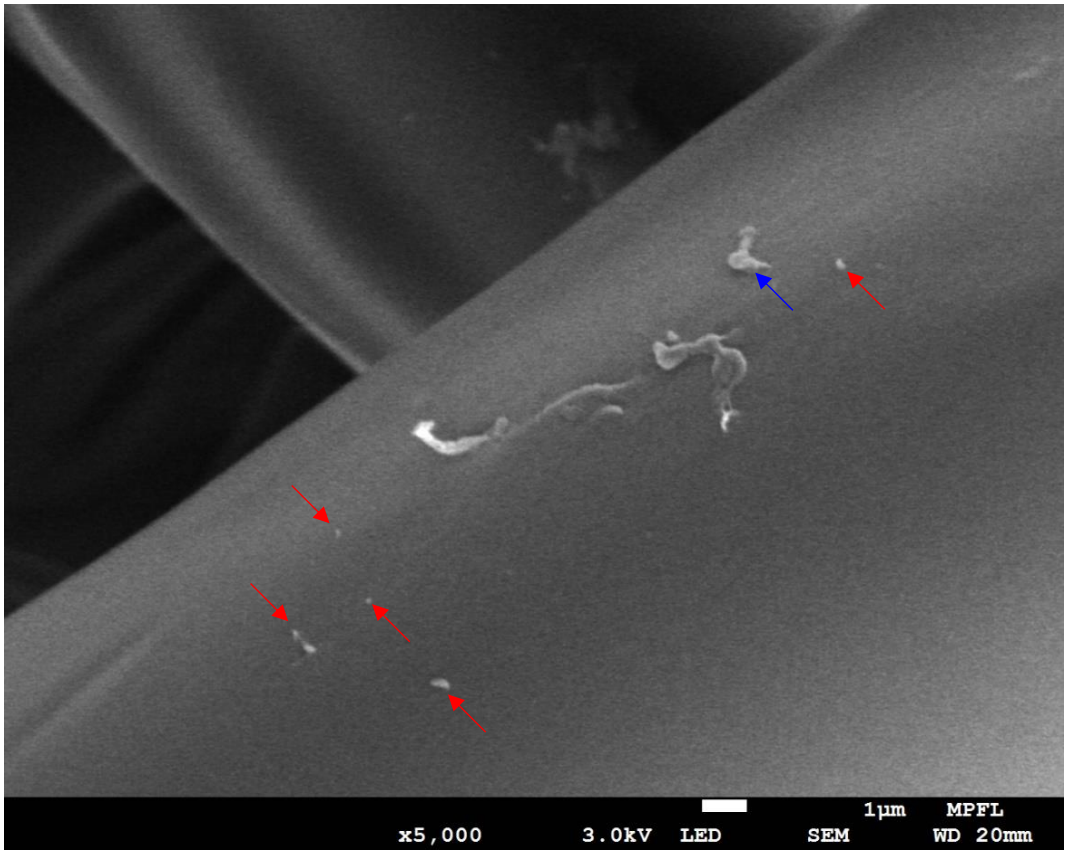




Random spot #1



Random spot #2



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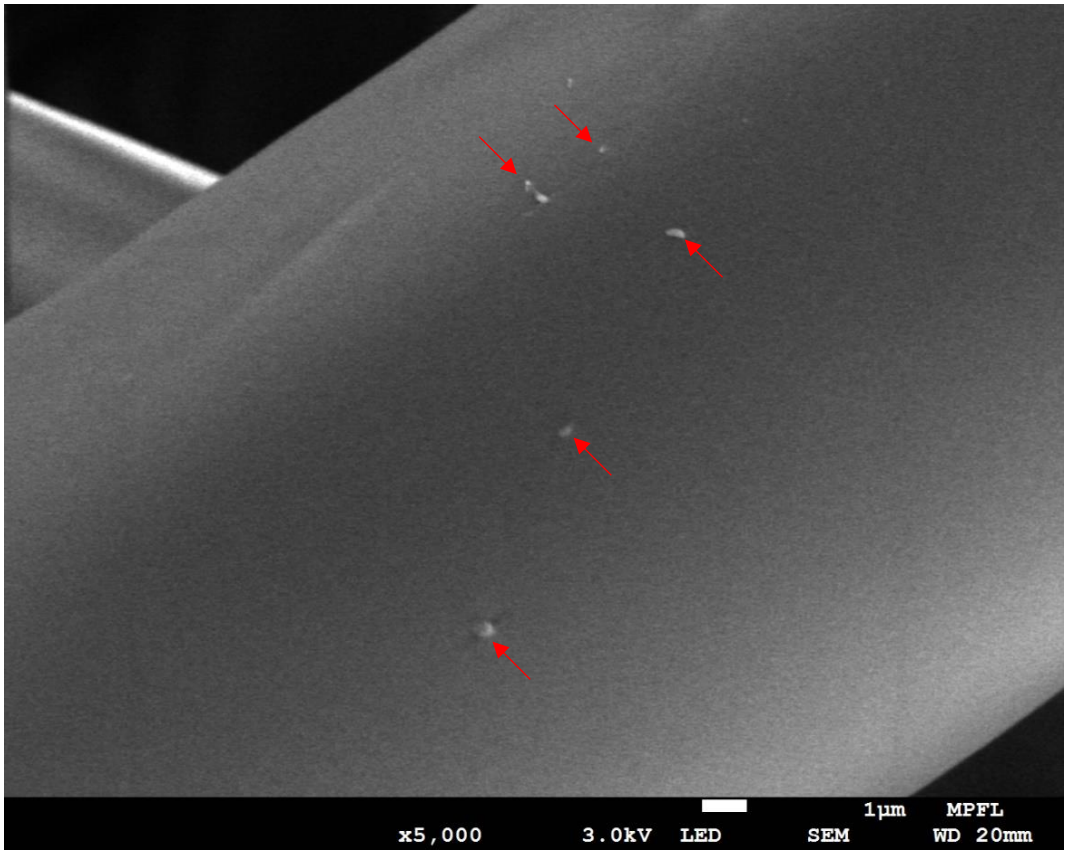

Random spot #4